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# ORDNANCE FIELD GUIDE

## VOLUME I

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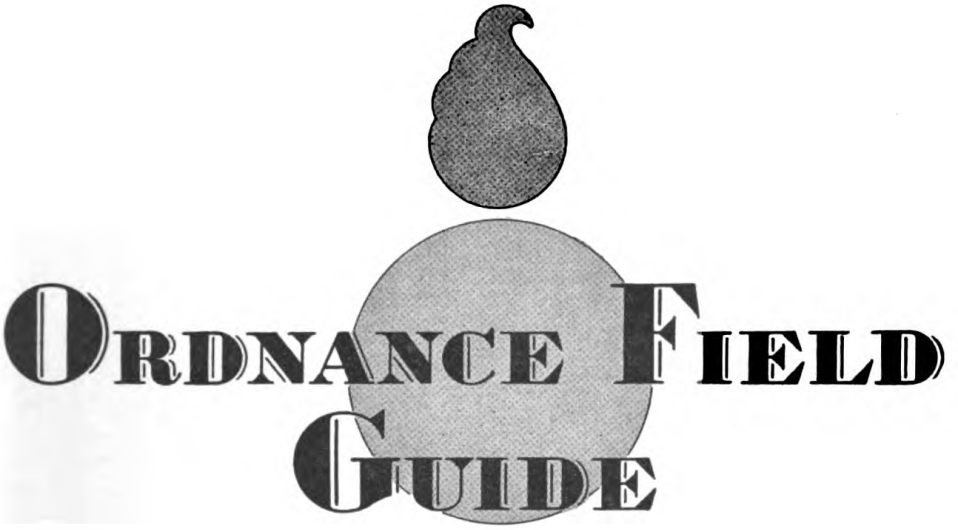
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*Edited by*

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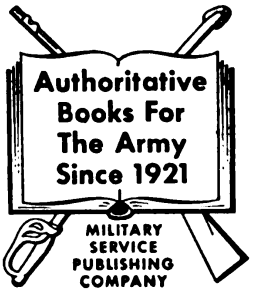
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# Dedication

This manual is dedicated to our comrades-in-arms of the Ordnance Department who have gone into the combat zones all over the world in support of the Arms and Services in their struggle against the Axis.

Their resourcefulness, initiative, and devotion to duty through month after month of arduous labor under difficult and hazardous conditions should serve as 'Guide' to the Ordnance Department for many years to come.

It is especially dedicated to those Ordnancemen who left their families to serve their country on Bataan, in Africa, Italy, France, Germany, Burma, China, and many other far-flung battlefields, and who will never return.

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# Contents


CHAPTER I

*Page*

MILITARY ORGANIZATION ..... 1

CHAPTER II

ADMINISTRATION ..... 61

CHAPTER III

LAW ..... 173

CHAPTER IV

MAPS AND AERIAL PHOTOS ..... 241

CHAPTER V

TROOP TRAINING ..... 315

CHAPTER VI

STAFFS ..... 693

CHAPTER VII

TROOP AND MATERIEL MOVEMENTS ..... 893


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# The Ordnance Field Guide

In the years to follow the defeat of Germany and Japan, the United States must play a major role. Regardless of what particular plan for the maintenance of security and peace may finally be adopted, one thing, at least, is certain: Our army must be ready to do its part in the great work. This work calls for an army flawlessly equipped, and thoroughly trained. Ordnance is both determined and prepared to do its part by insuring to that army the finest ordnance equipment and the best trained ordnance personnel in the world.

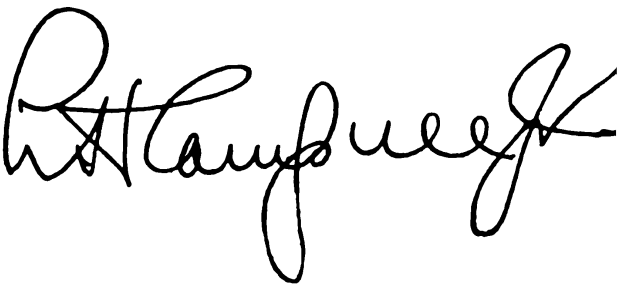
The experience of World War II has shown, to even the casual observer, the prime importance of that mobility and firepower which modern ordnance provides. And to the trained military mind ordnance now, as never before, spells the difference between success and failure.

The myriad changes in ordnance during World War II complicate and increase the study and the work of our ordnance officers to a vast extent. The training of our ordnance officer corps, one of the prime charges of the Ordnance Department, must not only be effective but it must be complete. Each man must possess in addition to a mastery of his own special subject, a sweeping knowledge of modern weapons, a working acquaintance with all automotive practice and a comprehensive understanding of an officer's duties and responsibilities.

To provide for this training, many have felt the need of a supplement to the hundreds of Technical Manuals and Training Courses, each of which treat exhaustively of a single subject. Not only is it desirable to have the outline of many manuals, course texts, and training aids in one book but this book should incorporate the military knowledge and experience which could be compiled only from all available sources.

To prepare this compendium of modern ordnance a large group of ordnance officers and enlisted men volunteered to work on such a project. Lt. Col. William C. Farmer, a member of the Staff and Faculty of the Ordnance School, Aberdeen Maryland, headed the group. Their material has been drawn from very many sources: Textbooks, manuals, service magazines, directives, dispatches, reports of observers from every battlefront and throughout the world, and last, but not least their own vast store of experience.

How well Colonel Farmer and his associates have accomplished the important work with which they were entrusted, is revealed in the pages which follow.



Major General, Chief of Ordnance

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# Preface

After several years of service with ordnance troops and staffs, both in the United States and overseas, it was the feeling of the editor that a definite need existed for a 'manual' of such broad scope that it would serve as an encyclopedic 'guide' and 'self-educating' text for ordnance officers in the field. The "Ordnance Field Guide" has tried to meet this challenging assignment.

This manual covers a wide range of material. Principal sources appear in the bibliographies which are appended to the various subjects discussed, and which also furnish a ready guide to the many War Department publications that cover in greater detail the various matter pertaining to the organization and administration of the Army, the technical and military subjects, and the materiel, functions and operation of the Ordnance Department here presented. Other sources are: Ordnance School and industrial textbooks, service magazines, standing operating procedures, ordnance plans, administrative orders, and other data obtained from overseas theaters, reports, conference notes, lectures, observers' reports, and the combined knowledge of some 200 Ordnance officers and enlisted men who have compiled and written the original manuscripts for the various sections of the manual.

Each officer and enlisted man who has contributed to this book is a specialist in some particular phase of ordnance operations or materiel. Many of them have served in the field, in Alaska, the Aleutian Islands, Australia, the Caribbean Area, the Far East, Guadalcanal, the Hawaiian Islands, Italy, the Middle East, New Guinea, New Hebrides, North Africa, Sicily, and the United Kingdom. Practically every type of ordnance field duty, with troops or staffs, is represented by their experiences. The Silver Star, the Legion of Merit, the Purple Heart, and the star-studded campaign ribbons worn by various contributors attest to their wide range of field activities. Every specialized course of instruction on ordnance materiel and operation offered by the various Ordnance schools is represented by a contributor to this work. Many of these officers are also graduates of the Command and General Staff School (in either the general or service staff course) or of other service schools.

The contributors have donated their services with no other remuneration than the satisfaction of aiding in a work that should help many ordnance officers to assimilate more quickly many of the complexities of their profession, thereby contributing to the efficiency of the entire Army and the war effort of the Nation.

The royalties from the sale of this book will be donated to the Army Emergency Relief Society.

In re-writing and editing the work of the various contributors, there has been no attempt to conform to a single standard of writing, and naturally many styles will be encountered due to the large number of contributors. All have attempted to treat the subject matter assigned to them in a 'down-to-earth' manner, and have tried to cram as much 'meat' as possible in the space allotted.

The data contained herein is *not* to be considered official. In using this manual, the reader must bear in mind that the composition, size, and duties of units and the quantities and types of equipment allotted to units are subject to constant change. In making field use of the data contained in this book, a check should first be made as to whether the then existing units and equipment are based on T.O & E's which are later than those upon which the discussions in this manual are based.

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Similarly, ordnance materiel is subject to re-design and improvement and operational technique improves with added experience.

All ordnance equipment charts, tables of organization and equipment, and similar material reproduced herein, in whole or in part, bear the official War Department designation and the date of issue.

It is suggested that the reader post any changes or revisions which might be later issued from official sources in his copy of the "Ordnance Field Guide." In this way, the book can be kept up-to-date and will retain its value as an accurate source of information.

The editor felt that in a work of this nature continuity of subject matter was most important. Therefore, there are no cross-references on minor subjects, although larger subjects have been cross-referenced when deemed necessary. It was believed, however, that the repetitions of information in the Guide would serve a useful purpose.

A study of this Guide cannot be expected to make the reader an expert in any one subject, but it should give a useful background for nearly every situation with which the ordnance officer can reasonably expect to be confronted in the field. It should also lay the groundwork for any specialization the reader might wish to pursue at a later date.

The original intention of the editor was to prepare an ordnance textbook of broad scope as a guide for training purposes. Due to the advanced state of Ordnance Training for World War II, a compromise between a textbook and a field reference guide has been compiled to serve for the duration of the present conflict.

The editor contemplates a revision of the "Ordnance Field Guide" shortly after the termination of the present war. It is expected that the experience gained in the editing of this edition, coupled with the many ordnance lessons of the war which will be available at that time, should enable the preparation of a much more comprehensive and cohesive textbook. A standardized set of books of this type would in the opinion of the editor be of extreme value in the post-war training of ordnance officers and troops, whether at ordnance schools, ordnance training centers, civilian colleges, or in the field. Criticisms, suggestions, and contributions from ordnance personnel, both in the garrison and in the field, will therefore be welcome at any time, and will be used to the fullest extent in the contemplated future revisions of this manual. They should be sent to the editor at the address below noted.

Special acknowledgment is made to Col. Willis R. Slaughter, Commandant, The Ordnance School, for making available the facilities of The Ordnance School during off-duty hours for research, illustrations and typing. The "Ordnance Field Guide" would not have been possible without his encouragement, appreciation and whole-hearted support.

Col. L. A. Codd, Executive Assistant to the Chief of Ordnance who took a personal interest in the Editor's idea for such a Guide, did much to make the project possible.

The Editor cannot conclude this preface without stating that he has been most effectively assisted by Major John B. Scott in the overall and detailed planning, editing, rewriting and coordinating of the material for the volumes of this work.

WILLIAM C. FARMER,
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Staff and Faculty
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Aberdeen Proving Ground, Maryland
January 1, 1945

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The following officers and enlisted men of the Ordnance Department contributed their time and efforts in compiling and writing the original manuscripts on the various subjects covered in this volume. The amount of work done by each individual ranges from one or two hours on some of the smaller contributions to many, many hours taken from their limited spare time over a period of two or three months.

No attempt is made to give specific credit to a particular writer, but all contributors are listed below under the pertinent chapter heading. In some cases the original manuscript was prepared by the Editor.

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# CHAPTER 1

# MILITARY ORGANIZATION

## ORGANIZATION OF THE ARMY

### The Congress and the Army

America was born out of a war, and each generation since the Declaration of ndependence has found itself confronted with the problem of insuring "domestic ranquility" and "providing for the common defense". It is only natural then hat, when the people of the young United States through their chosen represenatives wrote the Constitution of the United States, they empowered their Congress:

"To raise and support armies . . .

"To provide and maintain a navy . . .

"To make rules for the government and regulation of the land and naval orces . . .

"To lay and collect taxes to . . . provide for the common defense . . .

"To provide for calling forth the militia to execute the laws of the Union, suppress insurrections, and repel invasions . . .

"To provide for organizing, arming, and disciplining the militia . . .

"To declare war . . .

"To make all laws which shall be necessary and proper for carrying into execuion the foregoing powers." (Sec. 8, Art. I)

In order to accomplish these provisions, Congress controls the size of the Army nd makes appropriations of funds for military maintenance. Under the Constiution, however, an army appropriation bill may not cover a period of more than wo years. The origin of this restriction was the fear of a military dictatorship nd the belief that, if the funds for the Army were granted for only short periods, he Army could not make itself independent of the Government. The expenditure of all such funds is in the hands of the War and Navy Departments, both of vhich are under the President's control.

**Background of Army Organization.** General Washington's colonial army was he forerunner of the present highly trained and mobile Army of the United States. Influential men in the community recruited men into companies of troops to erve under Washington; of these companies they became the captains. If a leader rganized a regiment, however, he became its colonel. The private soldiers then lected the remainder of the company officers in the unit and, when field officers vere authorized, the company officers elected the field officers. This democratic rganization was a fundamental of the colonial forces and thus of our present nodern Army; it has carried some of its influences down through the years to 1944.

But the first real Army of the United States was created on 1 January 1776 vhen Congress enacted that our Army should be one national army instead of n armed militia drawn from and controlled by the original thirteen states. The Army had a modest beginning, for its original strength was 10,500 men.

Many of the organizational flaws of the colonial army, such as the election of fficers, were eliminated and the real foundation of the present Army was then set.

Officers were provided quarters and rations although their pay scale was much ifferent from present standards. As a point of interest, the following salaries ere paid:

| | |
|---|---|
| Major General | $31.60 per month |
| Brigadier General | $25.30 per month |
| Colonel | $12.60 per month |
| Captain | $ 6.30 per month |
| Lieutenant | $ 3.50 per month |

Enlisted men received more pay than company grade officers, since it was sumed officers had other incomes. Their pay is illustrated by the following:

| | |
|---|---|
| Private in the Infantry | $6.66 per month |
| Private in Artillery or Cavalry | $8.33 per month |

The Continental Congress on 16 September 1776 enacted the Articles of War



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and directed that they should be read to the troops every two months. Thus, one of the oldest traditions of the Army was begun, one that is typical of the American system: every normal consideration must be given the American soldier to see that he understands his duties, rights, and responsibilities.

**Present Day Organization.** Now let us investigate the authority for organization of the present Army of the United States. It is authorized by Congress and operates under the President as commander-in-chief. But, first we should consider the War Department, coming back later to the President and Secretary of War to get a clearer over-all picture.

## THE WAR DEPARTMENT

The Department of War, usually called the War Department, was the second executive department to be provided for by the statutes of the first Congress under the Constitution. It was created by an Act of Congress approved on 7 August 1789. It has been altered many times since, as it originally included activities now delegated to the Navy Department and the Department of the Interior.

The primary mission of the War Department is the management and coordination of our facilities so as to enable the Army to accomplish its mission of national defense on dry land. This primary purpose may be broken down into five principal responsibilities of the War Department:

(a) To plan the mobilization of the army;
(b) To organize, train, and maintain the army;
(c) To prepare plans for securing supplies;
(d) To prepare plans for the employment of the army in national defense;
(e) To supervise certain non-military activities, such as the control of rivers and harbors, and the supervision of administration of certain of our possessions (the Panama Canal Zone and Puerto Rico, for example).

In order to provide the most effective structure for the waging of successful war, a complete reorganization was effected on 9 March 1942. It provided, under the Secretary of War and the Chief of Staff, a War Department General Staff, Army Ground Forces, Army Air Forces, and Army Service Forces (originally Services of Supply), all with Headquarters in Washington, D. C.

This placed the following arms under the jurisdiction of the Commanding General, Army Ground Forces: Infantry, Cavalry, Field Artillery, Armored Command, Tank Destroyer Command, Coast Artillery (See Army Ground Forces, page 8 and Figure 3.) The Services were placed under control of Commanding General, Army Service Forces, by the same reorganization. (See Army Service Forces, page 11 and Figure 4.)

**The President.** By express provision of the Constitution, the President is "Commander-in-Chief of the Army and Navy of the United States, and of the militia of the several states when called into active service of the United States." (Sec. 2, Art II). He appoints all the regular and reserve officers of the Army and Navy, but officers of the state militia, when not in the federal service, are appointed as the laws of their respective states may direct. Although Congress makes the general laws under which the military forces are organized and maintained, large discretion is left in the hands of the President in making detailed regulations, particularly in time of war. Congress may empower the President to establish systems of food and fuel administration with power to regulate supply and to control consumption. It is by virtue of authority "to support armies" that war industries, utilities, and facilities may be subjected to governmental seizure in war time. When the nation is at war, there it is little in the way of regulation, construction, or conservation that Congress or the President cannot command.

Despite the fact that the President is commander-in-chief, actual command is exercised by the Secretary of War, who is charged with carrying out the policies of the President in military matters.

**The Secretary of War.** See Figure 1 for organization of the office of the Secretary of War. The Secretary of War is the head of the War Department and represents the President in command functions, thus becoming responsible for administration of the entire military establishment. He is appointed by the President for a four year term with Senate approval. He supervises all expendi-

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tures of money appropriated by Congress for the Army or for civil works placed under the direction of the War Department. He is responsible for the protection of our country, for the development of weapons and equipment, and for the instruction, discipline, and morale of all components and military training activities of the Army. War Department public relations activities fall under his immediate supervision.

The law requires certain matters to be handled personally by the Secretary of War. Specifically, he reserves to himself final action on affairs such as general policies, plans for national defense, legislation pertaining to the army, estimates for funds, expenditure of appropriations, and matters having a political aspect.

The Secretary of War is assisted by the Under Secretary of War, the Assistant Secretary of War, the Assistant Secretary of War for Air, and the Chief of Staff of the War Department General Staff.

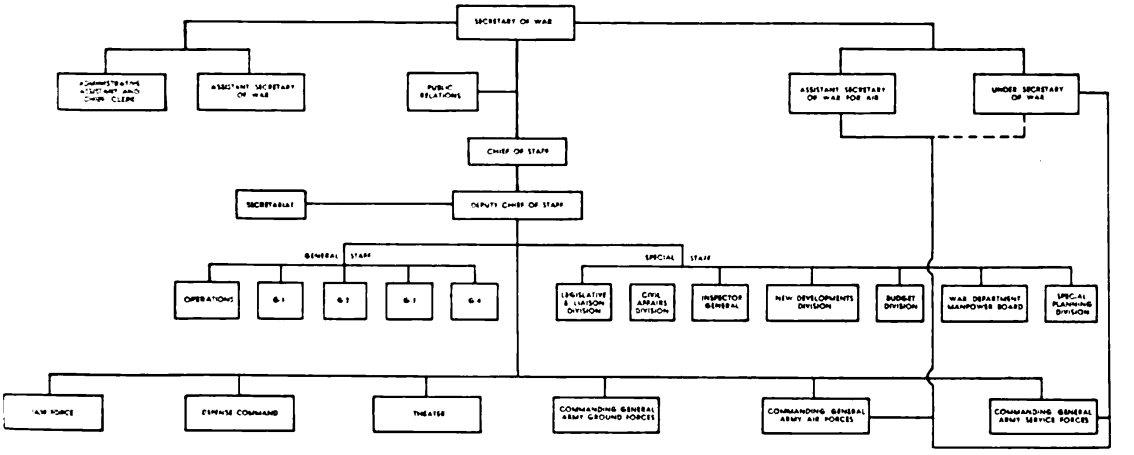



**Figure 1. Office of the Secretary of War.**

*The Under Secretary of War.* The Under Secretary of War is the business and procedure executive of the War Department. Under the provisions of the National Defense Act, he is charged with supervision of the procurement of all military supplies. He is responsible for adequate provision for the mobilization of industrial organizations and material essential to war needs. He exercises supervision over procurement including the preparation of plans and policies, and the supervision of activities concerning a long list of specific functions relative to munitions procurement. He supervises most directly the Army Service Forces.

*The Assistant Secretary of War.* To the Assistant Secretary are delegated general administrative duties within the War Department. The administrative assistant and chief clerk are under his general direction.

*The Assistant Secretary of War for Air.* The Assistant Secretary for Air is assigned policy-making and administrative duties concerning the activities of the Army Air Forces. His office was established in 1926.

## THE GENERAL STAFF

**The Chief of Staff.** The Chief of Staff, with the rank of general (now a general of the army) while in office, is the military head of the War Department General Staff and the immediate advisor of the Secretary of War or the President on all matters relating to the military establishment. He is charged with the three main duties of: (1) planning, (2) development, and (3) execution of the army program. He formulates plans for recruiting, mobilizing, equipping, training, and demobilizing the Army of the United States. He is the chief command element of the War Department and is, in reality, the head of the entire army field force.

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In the name of the Secretary, he issues such orders as will insure the proper execution of the army program. (See Fig. 1.)

*The Deputy Chief of Staff.* A Deputy Chief of Staff assists in supervising the activities of the General Staff and in discharging some of the heavy responsibilities which fall upon the Chief of Staff. He acts for the Chief of Staff in his absence. The Secretariat is of administrative assistance to the Chief and Deputy Chief of Staff.

**The General Staff.** Five Assistant Chiefs of Staff head the five divisions of the General Staff of the War Department. These divisions are:

Operations Division ..... OPD
Personnel Division ..... G-1
Military Intelligence Division ..... G-2
Organization and Training Division ..... G-3
Supply Division ..... G-4

The Assistant Chiefs of Staff cover every phase of planning and administration. They must provide in detail for the organization, arming, uniforming, equipping, training, and transportation of our armies in time of war.

*Operations Division.* The Operations Division might be called the "command post" of the War Department. It is subdivided into three groups: Strategy and Policy Group, Theater Group, and Logistics Group.

The first group supplies the Joint Chiefs of Staff with current estimates of the situation in all theaters of operation, makes recommendations on present and projected over-all strategy, and initiates as well as maintains current strategic plans.

The Theater Group, actually the command post, directs and coordinates all of the ground, air, and service activities in the defense commands, theaters, task forces, overseas possessions, and leased bases.

The Logistics Group maintains records of status and availability of all United States forces, equipment and munitions, establishing priorities for critical items as required.

*Personnel Division.* G-1 prepares plans and policies and supervises all activities that concern members of the Army as individuals. These activities deal with procuring, classifying, assigning, promoting, paying, transferring, retiring, and discharging all personnel of the Army. G-1 is also concerned with such responsibilities as personnel replacement, decorations, religious and recreational work, prisoners of war, uniform regulations, and Army Regulations.

*Military Intelligence Division.* G-2 has the primary mission of keeping the War Department informed of the enemy's situation and capabilities. This division collects, evaluates, interprets, and distributes military information; handles counter-intelligence and propaganda; and stipulates security measures, including codes and ciphers. The Military Intelligence Service is a component of this group.

*Organization and Training Division.* G-3 is charged with planning and supervising activities relating to the organization, training, and operation of the military forces, except for those matters which come under control of the Operations Division. G-3 prepares plans and policies of organization, including tables of organization, training regulations, military training in civilian schools and training camps, educational and vocational training in special and general service schools, movements of troops, and disaster relief plans.

*Supply Division.* G-4 has the responsibility of supplying the Army. This division plans for all equipment, buildings, storage, transportation, distribution, and maintenance of supplies. It is concerned with such details as those of traffic control, evacuation of sick and wounded, construction, salvage, road maintenance, and other matters related thereto.

**The Special Staff.** The Special Staff of the War Department handles administrative and technical matters in detail. It is composed of the Legislative and Liaison Division, the Civil Affairs Division, the Inspector General, the War Department Manpower Board, the Budget Division, the New Developments Division, and the Special Planning Division. (See Fig. 1.)

*Legislative and Liaison Division.* This division is charged with supervising the preparation of legislation requested by the War Department, as well as necessary reports to committees of Congress.

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*Civil Affairs Division.* The Civil Affairs Division coordinates planning for the military government of occupied territories or those to be occupied.

*Inspector General.* This department is composed of the efficiency experts of the Army. It inquires into and reports upon all matters affecting the efficiency and the economy of the Army. It supervises periodic inspections of all units of the Army, including their equipment.

*War Department Manpower Board.* This board surveys employment by the War Department of military and civilian manpower.

*Budget Division.* The Budget Division prepares financial policies and allocates appropriated funds.

*New Developments Division.* The New Developments Division is responsible for the innovation, development, and application of new weapons, devices, and techniques of military value.

*Special Planning Division.* This division is responsible for formulating plans for the conversion of the Army to a peace-time basis. It conducts concurrent studies and surveys of post-war problems for consideration of higher authority at the proper time.

**Other Agencies.** *Combined Chiefs of Staff.* The Combined Chiefs of Staff consist of the United States Joint Chiefs of Staff and representatives of the British Chiefs of Staff. This group prepares strategic plans for large scale operations by the military forces of the United States and the United Kingdom.

*U. S. Joint Chiefs of Staff.* The U. S. Joint Chiefs of Staff develop strategic plans as they relate to our armed forces. The Joint Chiefs of Staff are composed of the Commander-in-Chief of the U. S. Fleet and Chief of Naval Operations, Commanding General of the Army Air Forces, Chief of Staff of the War Department General Staff, and Chief of Staff to the Commander-in-Chief of the Army and Navy.

*Representatives of the British Chiefs of Staff.* The British Chiefs of Staff are organized similarly to the U. S. Joint Chiefs of Staff and send representatives of the Royal Air Force, the Royal Navy, and the British Army to Washington to assist in the coordination of the military activities of the United Kingdom with those of the United States.

*Military missions.* These are composed of civilian and/or military personnel who, as representatives of the President, are sent to Allied nations to assist in promoting coordination of the war effort.

*Military attaches.* These attaches are U. S. Army officers assigned by the War Department to assist ambassadors as advisors on military matters.

## THE THREE MAJOR COMMANDS

Now let us analyze the three major commands of the Army. These are the Army Air Forces (referred to sometimes as: A.A.F.), the Army Ground Forces (referred to sometimes as: A.G.F.), and the Army Service Forces (referred to sometimes as: A.S.F.). After these, a discussion of defense commands, theaters, and task forces will follow. (See "Field Organization," page 19.)

At the beginning of World War II, the three major commands had the tremendous responsibility of receiving, housing, training, and transporting the bulk of our Army to theaters of operations overseas and to all intermediate points necessary to supply and maintain these theaters. General of the Army Henry H. Arnold commanded A.A.F.; Lt. General Leslie J. McNair (killed in action) commanded A.G.F.; and Lt. General Brehon D. Somervell commanded A.S.F.

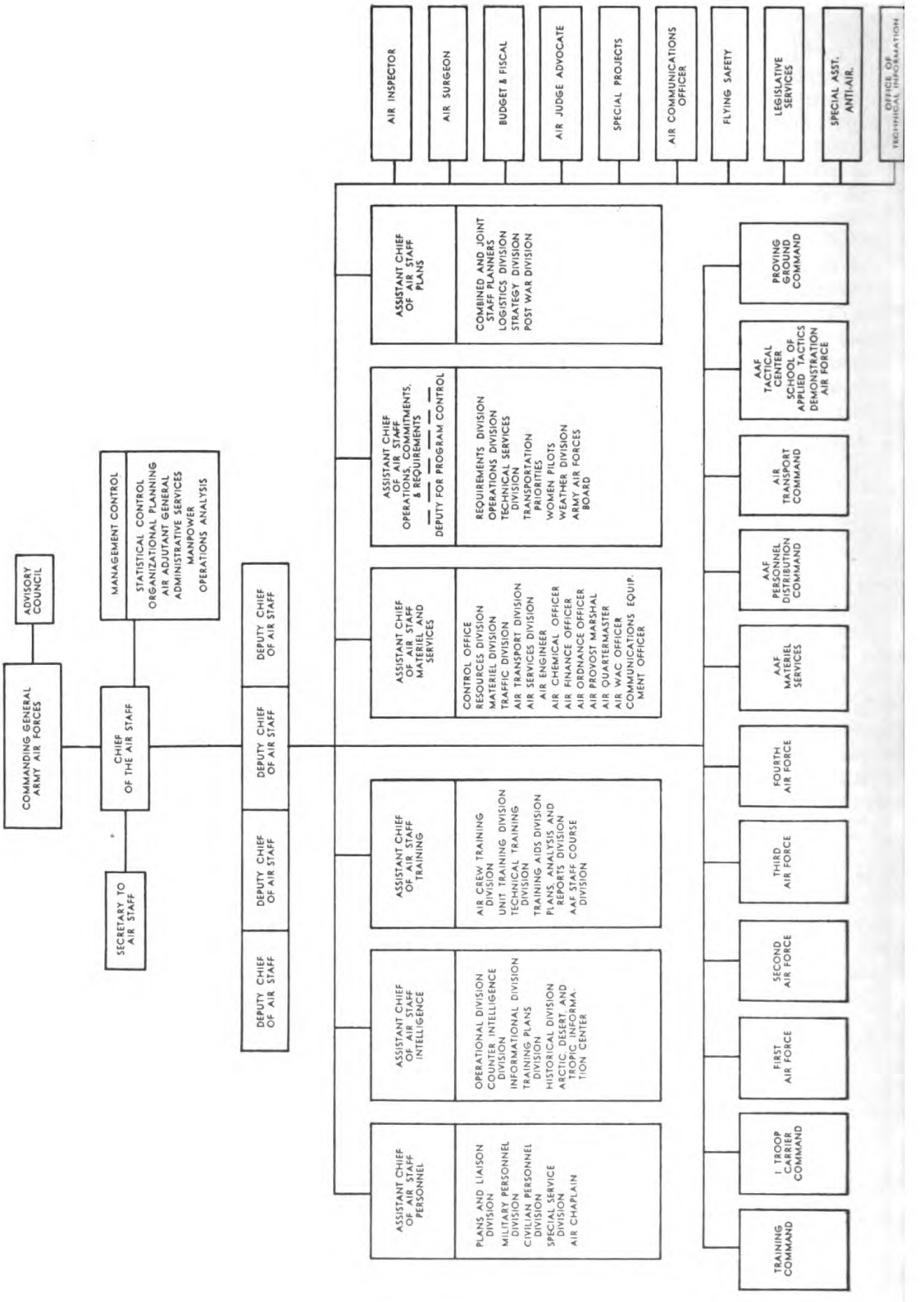
## I: THE ARMY AIR FORCES

**Mission.** The mission of the Army Air Forces is to procure and maintain equipment peculiar to the Army Air Forces, and to provide Air Force units properly organized, trained, and equipped for combat operations.

The training mission requires the operation of replacement training centers and schools for the training of personnel whose duties are carried out in the plane while in flight. Personnel included are pilots, bombardiers, navigators, aerial gunners, and radio operators, as well as ground crews whose duties involve the care, supply, and maintenance of Air Force materiel.

The combat mission requires the utilization of the above training in gaining air

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superiority; in destroying lines of communications, supplies, and reserves; and in furthering the strategic plans of the War Department in causing the enemy to cease to resist. Under the direction of the Secretary of War, the Chief of Staff prescribes the policies which govern the Commanding General of the Army Air Forces. The organization of A.A.F. is shown by Fig. 2.

**The Air Staff.** The Air Staff is composed of a Chief of Air Staff; four Deputy Chiefs of Air Staff; an Assistant Chief of Air Staff, Personnel; an Assistant Chief of Air Staff, Intelligence; an Assistant Chief of Air Staff, Training; an Assistant Chief of Air Staff, Materiel and Services; an Assistant Chief of Air Staff, Operations, Commitments, and Requirements; and an Assistant Chief of Air Staff, Plans. Also on the Air Staff are a group of officers who correspond to the Special Staff of the War Department: an Air Inspector, an Air Surgeon, an Air Judge Advocate, an Air Communications Officer, a Budget and Fiscal Section, a Special Projects Section, an Office of Legislative Services, a Special Assistant for Anti-Aircraft, an Office of Flying Safety, and an office of Technical Information.

*Assistant Chief of Air Staff, Personnel.* This office is charged with the supervision of recreation, morale, education, and other special service activities. It also establishes policies for and supervises the Army Air Forces personnel program, both military and civilian.

*Assistant Chief of Air Staff, Intelligence.* This office is responsible for intelligence training, photograph intelligence, target folders, tactical information, intelligence publications, Army Air Forces history, counterintelligence, and the collection, evaluation, and dissemination of intelligence.

*Assistant Chief of Air Staff, Training.* This office is charged with the establishment of plans, policies, and doctrines required to train individuals and units.

*Assistant Chief of Air Staff, Materiel, and Services.* This office establishes the policies, plans, and programs with respect to logistics of the Army Air Forces along the following lines: engineering research and development, traffic, transportation, supply, distribution, maintenance, issue, acquisition, construction of bases and facilities, procurement, and production.

*Assistant Chief of Air Staff, Operations, Commitments, and Requirements.* This office establishes unit requirements of organization, personnel, training, and materiel; establishes tactics and techniques of aerial warfare, standards of proficiency of units, and military characteristics of equipment; recommends the composition of Air Task Forces; prepares schedules of units for movement to the different theaters; authorizes the issuance of orders for the activation, reorganization, reassignment, and disbanding of AAF units; and provides long-range weather forecasts as a part of its duties.

*Assistant Chief of Air Staff, Plans.* This office formulates the plans for the employment of the Army Air Forces and maintains liaison with the U. S. Navy, with the War Department General Staff, and with Air Forces overseas in all plans involving the Army Air Forces.

**Air Force Commands.** Charged with the actual carrying out of the policies and plans evolved by the Assistant Chiefs of Air Staffs are the Air Force Commands. The commands and their major functions are given below. (See Fig. 2.)

*AAF Materiel and Services.* This command receives, stores, and issues all supplies to Army Air Force units. It maintains, repairs, and restores aircraft accessories and equipment, requiring third and fourth echelon maintenance. It is composed of the Air Service Command and the Materiel Command. (This command also conducts experiments, research and development of all aircraft and aircraft equipment, supplies and accessories.)

*AAF Personnel Distribution Command.* This command acts as a clearing house for air force men. It operates reception centers and facilities where men are received, reclassified, and assigned.

*AAF Training Command.* The Training Command is responsible for the training of all air force personnel, including air and ground crews.

*I Troop Carrier Command.* This command trains troop carrier units in the transport of airborne infantry, parachute troops, supplies, and other personnel within the theater of operations. It also trains units for the air evacuation of wounded.

*AAF Proving Ground Command.* This command completes engineering and development tests for the Materiel Command and the Air Service Command, and develops improved operational techniques.

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*Air Transport Command.* This command is responsible for the ferrying of all aircraft within the continental United States and to destinations outside the United States. It is responsible for the transportation by air of personnel, mail, supplies, and other cargoes for War Department agencies (except those served by the Troop Carrier Command), for War governmental agencies of the United States and for governments of the United Nations.

*AAF Tactical Center.* This command operates the AAF School of Applied Tactics (which is similar to a graduate school in aerial maneuver) and the Demonstration Air Force.

*First, Second, Third, and Fourth Air Forces.* These Air Forces train air units and contribute to the defense of the continental United States.

**Other Air Forces.** Additional Air Forces have been created and are in operation. Up to the present time, our Air Forces overseas run from the 5th through the 15th. Recently the 20th and 21st Air Forces were created and placed under the direct control of the Commanding General, Army Air Forces, to be used by the Joint or Combined Chiefs of Staff as a special heavy bomber command which can be moved at random anywhere in the world to contribute its efforts to the conduct of military operations at that particular spot.

*The Strategic Air Force.* A Strategic Air Force may be any one of the numbered Air Forces. It is composed of heavy bombardment, fighter aviation, and photographic aviation. Its principal function is to provide the Air Force with its longest range and most powerful striking components. Its job is to strike far to the rear of the enemy.

*The Tactical Air Force.* A Tactical Air Force is composed of light and medium bombardment units, fighter aviation, reconnaissance aviation, and aircraft warning service. It has as its missions the gaining of air superiority; isolating the battlefield by destroying the lines of communication, supply, and reserve for the enemy; and participating in gaining the objectives of the ground forces.

## II: THE ARMY GROUND FORCES

**Mission.** The mission of the Army Ground Forces is to provide ground force units properly organized, trained, and equipped for combat operations. (See Fig. 3.)

The training mission requires the operation of replacement training centers and schools, including officer candidate schools, for the Infantry, Coast Artillery, Field Artillery, and the Cavalry. This function was formerly performed by the chiefs of these arms. Training centers for airborne units, armored units, and tank destroyer units are also maintained by the Army Ground Forces and placed under the control of the Replacement and School Command of the ground forces.

Tactical units, such as infantry divisions, armored divisions, cavalry divisions, airborne divisions, as well as the larger units of the combined arms, such as army corps and training armies are organized, developed, and trained as directed by the War Department through the AGF. (See the section on "Field Organization" on p. 19) This command has no control over the theaters of operation, but is charged with supplying them with properly trained and equipped ground units. It coordinates air-ground training and task force planning with the Army Air Forces; it also coordinates supply, equipment, and munitions requirements with the Army Service Forces.

**The Ground Staff.** The Ground Staff, or General Staff, is organized and functions on the same basis as the General Staff of the War Department. It is composed of a G-1 Section, G-2 Section, G-3 Section, G-4 Section, and Requirements Section.

**The Special Staff.** The Special Staff of the Army Ground Forces is made up of representatives of the various technical and administrative services. It is their duty to maintain liaison with the chief of their own service under the Army Service Forces. They supervise units under the ground forces and recommend their assignment to commands of the Army Ground Forces or to Task Forces. They supervise the supply of equipment pertaining to their own arm or service. Ordnance affairs of A.G.F. are handled by the Ground Ordnance Section on this Staff. (See Fig. 3.)

**Ground Force Commands.** The Army Ground Force Commands are composed of service school and training and replacement centers as well as certain assigned

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armies and corps. The former consist of the Antiaircraft Command, Airborne Center, Replacement Depots 1 and 2, and the Replacement and School Command.

The Replacement and School Command has the following components:

1. Infantry, Field Artillery, and Cavalry Replacement Training Centers.
2. Infantry, Field Artillery, Cavalry, Coast Artillery, Parachute, and Special Service Schools.
3. The Armored Center, composed of the Armored Replacement Training Center and the Armored School.
4. The Tank Destroyer Center, composed of the Tank Destroyer Replacement Training Center and Tank Destroyer School.

**The Arms.** The arms under A.G.F. consist of the Infantry, Cavalry, Field Artillery, and the Coast Artillery Corps. The Air Corps was discussed under the section on A.A.F. (See page 5). While the Corps of Engineers, Signal Corps, and Chemical Warfare Service have combat responsibilities and can therefore be classified as arms, they are more fully discussed in the section on "Technical Services" under the A.S.F. (See page 11).

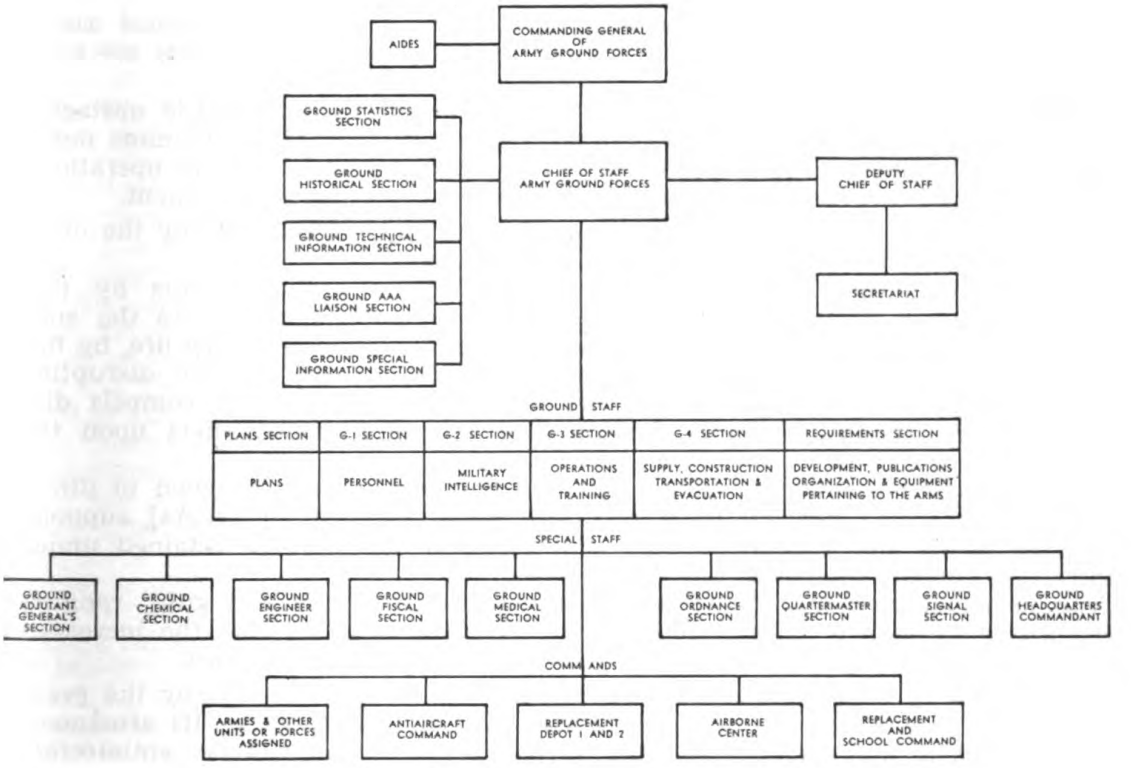



**Figure 3. Army Ground Forces.**

One arm or service by itself cannot win a battle in modern war. Rather, it is the combination of the proper proportion of all arms and services that brings about battlefield success. The characteristics of each arm adapt it to the job it is required to do. The higher commander coordinates and directs the action of all his forces as one unit, exploiting their powers to the fullest extent to attain victory.

*Infantry.* The Infantry, an arm of close combat, has the primary mission, in the attack, of closing with the enemy and destroying or capturing him; and, in the defense, of holding its position and repelling hostile attacks. It fights by combining fire, movement, and shock-action, normally operating dismounted. Much of its present effectiveness depends upon its degree of maneuverability.

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The Infantry has limited firepower, however, and must be adequately reinforced by the support of artillery, tanks, combat aviation, and other arms. Its principal weapons are the rifle and bayonet, the automatic rifle, and the machine gun. Other weapons include mortars, pistols, grenades, light antitank weapons, and antitank guns.

*Cavalry.* Cavalry, characterized by a high degree of battlefield mobility, consists of ground units transported by horse, motor, or mechanized methods. Cavalry depends on rapidity and flexibility to achieve its mission. It covers relatively broad fronts but in slight depth.

Cavalry is ordinarily employed in exploitation and pursuit, screening operations, ground reconnaissance, combat liaison, mobile reserve, harassing action, and tactical surprise action. It may also be used in the defense in delaying actions and retrogrades.

Horse cavalry can operate over almost any terrain and under all conditions of weather. Its mounts may be transported by van so that its firepower may be quickly and easily moved from one position to another. It habitually maneuvers while mounted, but fights on foot.

*Corps of Engineers.* The Corps of Engineers has the primary missions of construction and demolition to increase the combat effectiveness of troops, facilitate their movement, and hinder the movement of the enemy. Engineers increase the combat power of other arms by performing combat missions, by technical assistance, and by the supply of necessary equipment. Their service functions are more fully discussed under A.S.F.

Combat engineers participate actively in the penetration of hostile obstacles, the capture of fortified localities, and in the defense of road blocks or mine fields.

Important engineer combat missions include ferrying and bridging operations, operation on landing fields, and the elimination of obstacles to movement.

*Field Artillery.* Field Artillery furnishes the fire support required by the other fighting arms. It has two principle missions in combat.

The first includes support of infantry, cavalry, or armored units by fire, neutralizing or destroying those targets which are most dangerous to the supported arms. The second is to give depth to combat by counterbattery fire, by fire on hostile reserves, by restricting movement in rear areas, and by disrupting hostile command agencies. Artillery fire is highly destructive; it compels dispersion of the enemy, is highly flexible, and has great moral effect upon the enemy.

Artillery will normally be subdivided for combat into units assigned to direct support of specified fighting units and into units assigned as general support. Both the direct and general support artillery will, however, be retained under centralized control whenever the situation permits.

The principal weapons of the field artillery are howitzers and guns, ranging from 37mm through 8 inches. It is important, in passing, to note the increased importance placed upon heavy artillery as World War II progresses.

*Coast Artillery Corps.* The Coast Artillery Corps is characterized by the great amount of fire which it can deliver against naval and air targets. Its armament comprises fixed and mobile seacoast artillery, fixed and mobile antiaircraft artillery, and submarine mines. The Coast Artillery Corps may be employed either in the defense of coast lines or in the field.

In sea coast defense missions, the corps helps the Air Corps and the Navy to protect the fleet, to defeat naval and air attacks against harbor defenses, naval bases, cities, or other important areas, and to support the infantry and other arms in beach defenses. The principle weapons used in sea coast defense range from 6-inch to 16-inch guns, howitzers and mortars.

Antiaircraft artillery combats hostile aircraft with weapons ranging from 50 cal. through 120mm antiaircraft weapons.

*Armored Units.* These units, built around tanks, have the primary role of offensive action in support of the infantry against hostile rear areas and in destruction or neutralization of the obstacles which impede the advance of the infantry. They give mobility to infantry and are aided in turn by the infantry's destruction or neutralization of antitank guns and mines.

Such units are characterized by their great mobility, protected firepower, and

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shock action. Organized into battalions and groups of battalions, they are typical attachments to divisions from higher headquarters, and will normally be employed in mass on decisive operations. An armored group may sometimes include an armored infantry battalion.

*Tank Destroyer Units.* These are designed especially for offensive fire against hostile armored forces. It is their mission to destroy enemy tanks by massed fire. Lacking the degree of armor-protection of tanks, they rely more upon mobility. They belong in mobile reserve until the enemy armor is vulnerable to their fire. Their armor-piercing firepower from high velocity guns, added to their mobility, makes them essential attachments to divisions from higher headquarters in the face of armored opposition. A secondary mission, based on a command decision, is the reinforcement of artillery. They are organized into battalions and into groups of battalions.

## III: THE ARMY SERVICE FORCES

**Mission.** The mission of the Army Service Forces is to develop, design, manufacture, procure, transport, store, distribute, issue, maintain, repair, and salvage all military supplies and equipment (other than those peculiar to the Army Air Forces) for the Army, and to some extent, for the other United Nations; to provide and train personnel for service units of the Army; to transport men and supplies; and to provide for the shelter, health, and welfare of Army personnel.

**Organization.** (See Fig. 4) The Commanding General, Army Service Forces, has organized the service forces as a business organization. His job is to operate this supply business for the waging of war. To keep his organization operating at peak efficiency, the Commanding General has decentralized the authority for action to the units and individuals responsible for actual performance of the operations. Responsibility for a function is matched by the authority necessary to perform that function. There are a Deputy Chief of Staff for Service Commands, a Control Division and a Director of Plans and Operations to assist the Commanding General. The office of the Provost Marshal General, Intelligence Division and National Guard Bureau are agencies under the Commanding General. The Army Service Forces is broken down into Functional Staff Divisions. The units of organization performing the operating duties of the Army Service Forces are the Technical Services and the Service Commands.

**Staff Divisions.** The Staff Divisions of the Army Service Forces correspond to the General Staff of the War Department. They make recommendations to the Commanding General and, in his name, advise and instruct the Technical Services and the Service Commands. These Staff Divisions are unique in thus decentralizing administrative control of certain activities of the service forces and providing for a functional set-up in organization. The functional staff divisions are the Director of Personnel, the Director of Military Training, the Director of Supply, the Director of Materiel, the Fiscal Director, the Adjutant General, and the Judge Advocate General.

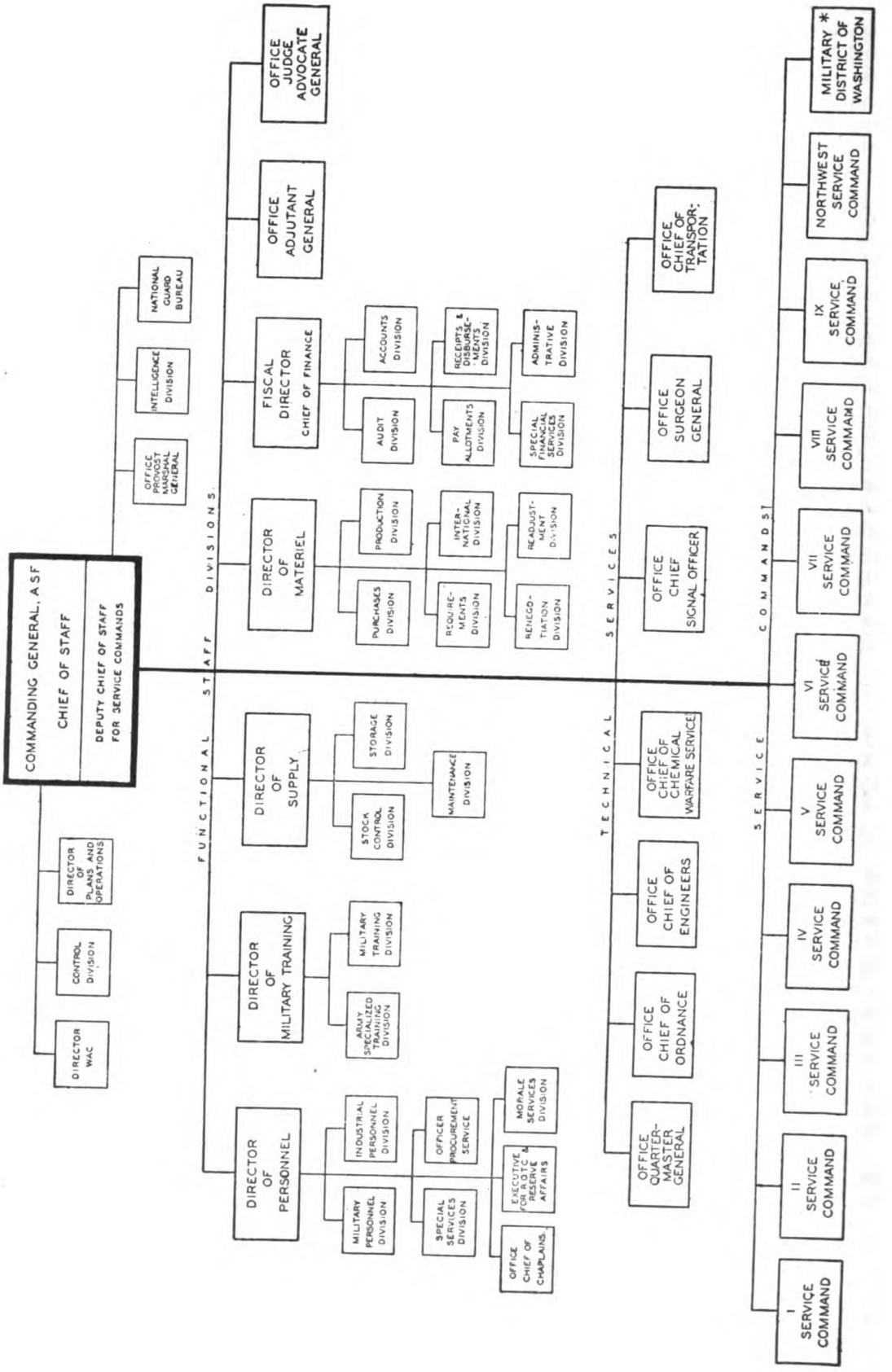
*Director of Personnel.* The Director of Personnel assists and advises the Commanding General on military and civilian personnel matters, including manpower requirements, procurement, welfare, specialized college training, and policies pertaining thereto. Under this office come the Executive for ROTC and Reserve Affairs, Special Services Division, Officer Procurement Service, Personal Affairs Division, Information and Education Division, and Office Chief of Chaplains.

*Director of Military Training.* The Director of Military Training prepares plans and policies for, and supervises the military training of, all elements of the Army Service Forces. This includes supervision, except for curricula and doctrines, of the National Guard not in Federal service, the State Guard, and the operation of the Command and General Staff School and the Military Academy.

*Director of Supply.* The Director of Supply plans, coordinates, and supervises the over-all storage and materiel handling of the Army Service Forces; coordinates and insures distribution of supplies and equipment coming within the jurisdiction of the Army Service Forces, from completion of manufacture to salvage; and supervises the proper care, servicing, use, repair, overhaul, and reclamation of all items of equipment issued to all components of the Army.

*Director of Materiel.* The Director of Materiel prepares and maintains the Army Supply Program, including international aid. This office represents the

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Commanding General, Army Service Forces, in matters relating to the determination of Army materiel requirements, their procurement, and production.

*Fiscal Director.* The Fiscal Director initiates, prescribes and supervises all War Department principles, practices, and procedures relating to the accounting and auditing, the receipt and disbursement, of appropriated funds. He acts also as the Finance Officer for the Army.

*The Adjutant General.* The Adjutant General acts for the War Department as well as for the Army Service Forces. He carries out, for the War Department and the Army, administrative functions concerning personnel, records, correspondence, publications, decorations, and awards; administers and disburses allowances and allotments of military personnel for family dependency; and operates the Army Postal Service.

*The Judge Advocate General.* The Judge Advocate General serves as the chief law officer of the War Department. He supervises the system of military justice throughout the Army, operates the system of appellate review of records of general courts-martial provided by Article of War 50½, and furnishes legal advice and service to all agencies of the War Department.

**Technical Services.** (See Fig. 4) The technical services operate various field installations such as procurement districts, depots, manufacturing arsenals, and ports of embarkation. They also train troops of their own service within the policies established by the Military Training Division, Army Service Forces, and supply such troops to service commands and units of the field forces.

The seven technical services in the ASF include the following: Ordnance Department, Quartermaster Corps, Corps of Engineers, Chemical Warfare Service, Signal Corps, Medical Department, and Transportation Corps. The Chiefs of these services report directly to the Commanding General, ASF, each handling the details of the service of which he is the head.

Let us discuss each of these technical services in more detail.

**Ordnance Department.** The mission of the Ordnance Department and a full analysis of its functions will be found in the last section of this chapter. (See page 33.)

**Quartermaster Corps.** The mission of the Quartermaster Corps is to assure the supply to the Army of equipment and supplies for which the Quartermaster General is responsible; to procure, store, and distribute such equipment and supplies in quantities and at such times as may be required to meet the Army Supply Program and other directives of higher authority; to provide Quartermaster items required for lend-lease supply; to insure proper training of Quartermaster troops furnished to service commands, units of the Army Ground Forces and Army Air Forces; to prescribe methods of operation for certain types of installations providing services connected with the maintenance of troops.

Major items purchased by the Quartermaster General are subsistence, clothing, equipage, general supplies, liquid and solid fuels, lubricants, materials handling equipment, and items of a nonmilitary nature.

Other responsibilities of the Quartermaster General include the direction of remount activities, formulation of policies for the operation of military cemetaries, and the disposition of deceased personnel of the War Department.

**Corps of Engineers.** The Corps of Engineers may be classified both as an arm and as a service. (See section on Engineers under 'Arms', page 10.)

The mission of the Corps as a service is to assure the supply to the armed services and to international aid of such equipment and supplies as are assigned to the Corps of Engineers for procurement, in such quantities and at such times as are required to meet the needs of the Army Supply Program, and to fulfill directives of higher authority; to train and furnish specialized engineer troops to service commands and units of the field forces; to acquire and dispose of real estate for the Army; to assure the proper execution of war construction projects and the adequate performance of repairs and utilities work for the Army.

The major types of items procured by the Corps of Engineers are bridges (both floating and fixed), heavy construction equipment of all kinds, surveying and map reproduction equipment, camouflage materials (including nets, garnishing strips, and paint), antiaircraft searchlights, barrage balloons, airplane landing mats, demolition equipment and supplies, water purification and distributing equip-

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ment and supplies, firefighting equipment for posts, camps, and stations, maintenance equipment, such as mobile shops, etc., general construction equipment (such as carpenters', blacksmiths', and electricians' tools), field fortification supplies (such as barbed wire, sandbags, etc.), theater of operations construction materials and equipment, and gasoline and fuel oil distributing equipment.

**Chemical Warfare Service.** The mission of the Chemical Warfare Service is to develop, procure (manufacture and purchase), and supply to the Army all chemical weapons, materiel and equipment used by the various arms and services, and to procure articles designated in procurement lists approved by the Commanding General, Army Service Forces; to formulate and develop tactical doctrine for Chemical Warfare Service in accordance with War Department doctrine; to promulgate training doctrine and prepare necessary publications for the employment, instruction and training of the Chemical Warfare Service and for the care and use of chemical materiel and equipment; to prepare mobilization plans for Chemical Warfare Service and service annexes to all specific war plans; to act as technical advisor to the Chief of Staff in all matters pertaining to the mobilization of the Chemical Warfare Service.

The major types of items procured by the Chemical Warfare Service are smoke and incendiary materials, toxic gases, chemical weapons and munitions, rear area smoke appliances, chemical agents, chemicals, ceramics, gas masks and components, protective fabrics and materials, and other chemical warfare supplies and equipment including chemical plant equipment, tools, jigs, dies, manufacturing aids, and machines for Chemical Warfare Service manufacturing activities.

**Signal Corps.** As a service, the Signal Corps mission is to meet the primary responsibility of the Signal Corps, as the communication agency of the Army, for military signal communication; to develop, procure, store, issue, and repair communication equipment and supplies in such quantities and at such times as are required to meet the Army Supply Program; to install, maintain, and operate communications systems of all types wherever needed; to coordinate, integrate, and standardize signal communication equipment, methods, and procedures within the Army, with the Navy, and with friendly foreign powers; to train and furnish specialized signal troops and units to all requiring elements of the Army; to perform photographic work for Army Ground Forces and Army Service Forces, and such other photographic work for the Army as is assigned by the Army Pictorial Board, or other authority.

The major items of equipment and supplies procured by the Signal Corps include radio communication equipment; electrical apparatus for radio direction and range finding; telephone, cable, telegraph, printing telegraph, and facsimile equipment; signal communication equipment for aircraft, for fixed airways systems, and air navigational aids; communication equipment for motorized armored forces and other ground forces, including parachute troops; sound recording and interception equipment; meteorological, photographic, V-Mail, fixed sea coast defense, fire control, and pigeon equipment; cryptographic, coding, and cipher equipment, including secret inks and associated chemicals; and experimental, research, and special types of Signal Corps equipment.

**Medical Department.** The Medical Department has the following mission: to assure the proper physical selection of military personnel; to conserve military manpower through appropriate disease-preventive measures, adequate medical, surgical, and dental treatment, and suitable hospitalization; to assure proper physical selection and professional care of military animals; to train and furnish specialized medical department troops to service commands and units of the field forces; to assure the supply to the Army of such equipment and supplies as are assigned to the Medical Department for procurement, in such quantities and at such times as are required to meet the Army Supply Program, and other directives of higher authority.

The major types of items procured by the Medical Department are medical, dental, surgical, veterinary, hospital, and laboratory supplies, equipment and instruments, biologicals, drugs and chemicals, laboratory strains, X-ray machines and supplies, physiotherapy equipment, surgical appliances and dressings, and field medical equipment.

**Transportation Corps.** The Transportation Corps has the mission of directing,

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coordinating, and supervising all transportation functions of the War Department, and of operating the field installations necessary to these functions. It prepares all plans for the transportation requirements of the War Department and represents the Department in obtaining shipping allocations. It allots shipping space; handles troop movements; maintains War Department liaison with railway, commercial motor, and inland water transportation industries; operates military intelligence and security plans on all War Department transportation (except theaters of operation); coordinates all shipping procedures at holding and reconsignment points and ports of embarkation; and exercises technical staff control over utility railroads.

The Transportation Corps, for example, routes all movements of War Department rail freight of one or more cars, operates the War Department fleet of railroad tank cars, and controls the flow of cargo to ports for export.

Its field functions include operation of transportation zones, districts, ports and sub-ports of embarkation, the Army Transport Service and the Military Railway Service.

## SERVICE COMMANDS

**Organization.** The United States is organized into nine administrative subdivisions which are called service commands. Under a plan initiated when General Douglas MacArthur was chief of staff, states were apportioned to these commands on the basis of population. Figure 5 shows the geographic limits of each command; all commands are under control of the ASF Deputy Chief of Staff for Service Commands.

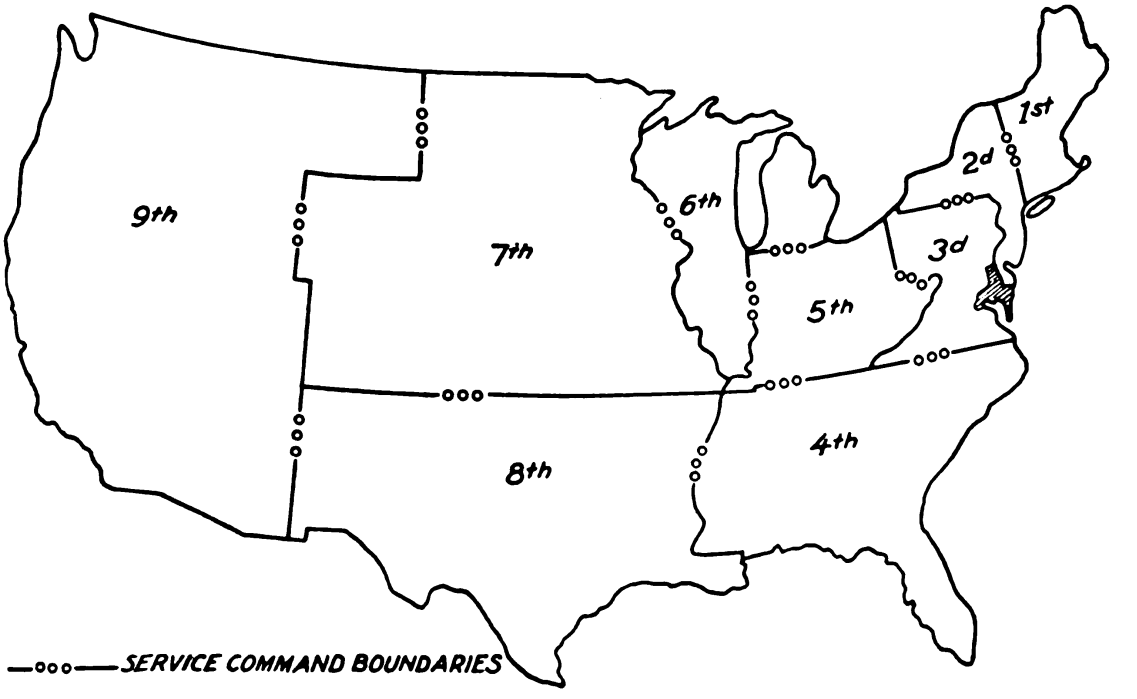



**Figure 5. Service Command Locations.**

Prior to World War II, service commands were called corps areas. Their commanders, usually Major Generals, exercised control over all the military personnel and establishments which were within their territorial limits, except for certain exempted stations and personnel. Their duties included tactical as well as administrative responsibilities. Shortly after passage of the Selective Service Act, however, service commanders were relieved of their tactical responsibilities.

**Mission.** The mission of each service command as a field agency of the Army Service Forces is to render assistance in supply and administration to all elements of the Army within its geographic limits. (See AR 170-10). Service command organization is shown by Fig. 6.

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The service commands have the following principal responsibilities:

Personnel and training;
Storage and issue of supplies;
Repair and salvage activities;
Housing and hospitalization of troops;
Supervision of Army Exchange, special service, and morale activities;
Ordnance maintenance (except Ordnance establishments and ports);
Laundry facilities and other utilities;
Real property and real estate;
Fixed signal communication;
Guard protection of installations;
Legal, financial, and administrative service and assistance.

Service commands do not handle basic functions of supply related to procurement including experimentation, purchasing, and manufacturing; new major construction; depot operation; nor port, staging areas, and other transportation agency operations.

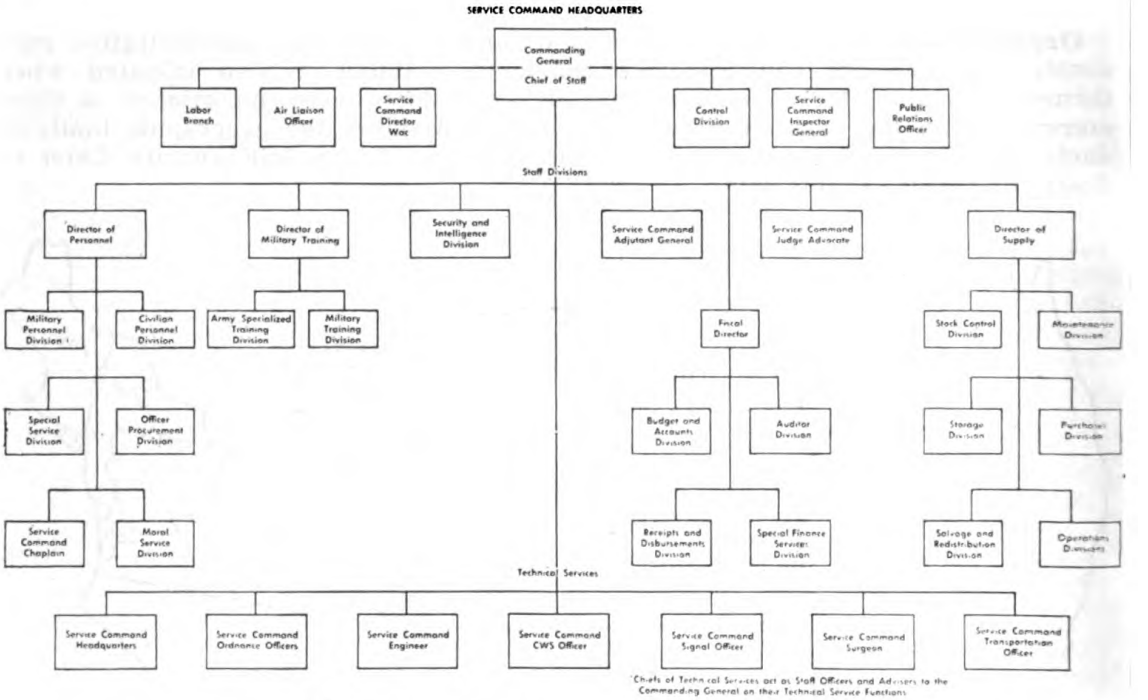



**Figure 6. Service Command Organization.**

Service commanders delegate their authority to the commanding officers of the camps, posts and stations under their jurisdiction. It is then the duty of the post commander to furnish housekeeping services to the troops at his location. He will render every service and assistance possible to the field forces units. His principal duties consist of supervising and inspecting all post activities under his control to determine and correct unsatisfactory conditions. The organization of his headquarters closely parallels that of the service commander.

**Classes of Installations.** The responsibilities of service and post commanders vary with the different classes of installations. The following generalities govern the various cases.

*Class I installations* are under the service commander. These installations include service command headquarters; recruiting and induction stations; medical and dental laboratories, except those under the control of tactical units and those at the Army Medical Center; and state guard and R. O. T. C. functions.

*Class II installations* are not under the service commander, except for housekeeping duties. These installations include posts utilized by AGF for housing troops, schools, training centers, replacement centers, and for maneuver areas.

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The service commander is responsible for and has control over the performance of administrative and supply functions. He has no authority for new major construction or supply of items and services peculiar to the AAF.

*Class III installations* are under the command of the AAF. Service commanders have very limited duties at these installations. These include such matters as action in domestic emergencies, control of provost marshal and finance activities, and certain general courts-martial jurisdiction.

*Class IV installations* are directly under the command of the chief of an administrative or supply service of the ASF. In these installations, the limited duties of service commanders are essentially the same as in class III locations.

In addition to the nine numbered service commands, the Military District of Washington and the Northwest Service Command must be mentioned here.

The Military District of Washington includes the District of Columbia and several counties of Maryland and Virginia, as shown by the shaded area on figure 5. It is not a part of the Third Service Command in which it is located, and was established to unify Army activities in the national capital area.

The Northwest Service Command lies outside the borders of the United States. It covers portions of the provinces of Alberta and British Columbia and the territories of Yukon and Mackenzie in Canada, and includes railroads, highways, communications systems and pipe-lines. It was organized primarily for the purpose of development of the Northwest, and is the agency which administers the Alaska Highway and the Canol project.

## COMPONENTS OF THE ARMY OF THE UNITED STATES

**Army of the United States.** The Army of the United States consists of the Regular Army, the National Guard (while in the service of the United States), and the Organized Reserves. In peacetime these units normally function independently.

However, in wartime these units must be welded into one well-coordinated unit called the Army of the United States; this accomplishment has been one of the major feats of this war. Component distinctions have been largely eliminated. No single unit can be said to be composed of members of the Regular Army or National Guard. Individual officers and men have been merged into the larger and more important structure. The fact is that few know or care especially from which component an individual was drawn.

**Regular Army.** The Regular Army is our only permanent, professional military force. It consists of officers and soldiers who have chosen as a career the lifetime study of military matters. The military instructors, strategists, technicians, and technical experts in the Regular Army form the structural foundation of an enlarged Army and constitute the backbone of the land forces required for any military effort undertaken by the United States. The historic policy of the United States has been to maintain a small standing army of trained officers and enlisted men around whom an adequate military force must be constructed when the nation is confronted with a war.

The Regular Army must be prepared to carry out the following missions:

- Operate and maintain garrisons for the continental frontiers of the United States and overseas possessions.
- Supply personnel for the development and training of the National Guard, Organized Reserves, and Reserve Officers' Training Corps, and for the conduct of Citizens' Military Training Camps.
- Serve as an organization for the administration and supply of peacetime establishments.
- Form a framework for rapid expansion to meet wartime requirements.
- Act as a repository of cumulative military knowledge and a laboratory for military developments.
- In conjunction with the National Guard, to be a covering force in a major war.

Research by the Regular Army has been conducted continually to insure the latest developments in arms, ammunition, and essential equipment. Its goal has been to develop the best airplanes, tanks, guns, ammunition by constant experimenting, planning, and testing.

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Certain civilian duties devolve upon the Regular Army, such as flood control, inland waterway, harbor and other major construction projects.

**National Guard.** The National Guard is made up of citizens of the United States who are so interested in national defense that they take an active part in military matters outside the time devoted to their regular professions and occupations. There are National Guard units in each of the forty-eight states, Hawaii, Puerto Rico, Alaska, and the District of Columbia. Like the regular forces, the National Guard consists of units of the different arms and services that form a modern army.

The National Guard is allotted funds by Congress to meet its needs. In addition, it receives money from the States for the building and upkeep of armories and camps, for extra field training, for extra pay in times of state emergency, and for numerous other expenses.

The National Guard is organized into divisions, brigades, regiments, and other units, similar to the Regular Army. The units in each service command come under the supervision of the service commander in time of peace, and automatically become part of his command when they are first ordered into the active military service of the United States in case of war.

The National Guard has a two-fold mission. First, it comprises the organized military force of the state to which it pertains. As such, it can be utilized by the state authorities for any legitimate purpose authorized by the laws of the State. for, when not in the federal service, it is under the command of the Governors of the various States. Second, when authorized by Congress, the President may call or draft any or all units into the active service of the United States. National guard personnel and units thus constitute a reserve component of the Army of the United States. When serving in this capacity members of the National Guard become federal troops subject only to the orders of the Federal Government.

In time of peace, the National Guard mission is to provide a force sufficiently trained and developed to be available for employment by the State governors or by the United States in minor emergencies within the United States. In peace and war, the National Guard has always played a major role in state and national emergencies.

**Organized Reserves.** The Organized Reserves consist of the Officers' Reserve Corps, the Enlisted Reserve Corps, and the Organized Reserve units.

*Officers' Reserve Corps.* The Act of Congress approved 3 June 1916, as amended 4 June 1920, established a system of military education in American schools and colleges called the Reserve Officers' Training Corps. There are 308 colleges and universities now participating in the program. The Officers' Reserve Corps is composed of men who have voluntarily accepted reserve commissions ranging from second lieutenant to brigadier general. Serving generally on an inactive status without pay, they are occasionally ordered to short periods of active duty; during the fiscal year ended 30 June 1938, for example, a total of 27,685 received this training. The older officers generally are those who served in officer status during World War I. The younger officers have been commissioned since World War I, usually after graduation from the Reserve Officers' Training Corps. In time of war, the President may with congressional approval order reserve officers to active duty for indefinite periods without their consent.

*The Enlisted Reserve Corps* is composed of persons voluntarily enlisted for service in the Corps.

*The Organized Reserve Units* are composed of officers of the Officers' Reserve Corps and of enlisted men of the Enlisted Reserve Corps. Many such units were organized as reserve infantry divisions or other units, officered at war strength, prepared for mobilization, and cadre-trained to perform their functions in the event of war. General supervision of this component of the Army and of its policies and regulations is the responsibility of the Chief of Staff.

## POST-WAR PLANS

Post-war plans for the Army of the United States are based upon a continuation of the American tradition of a small standing army and on organized civilian reserve. According to WD Circular 347, 25 Aug 44: "It is assumed that for sometime after the defeat of the Axis powers, the United States will maintain such

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temporary military forces, in cooperation with its Allies, as may be necessary in order to lay the foundations for a peaceful world order . . .

"It is also assumed, for purposes of planning, that the Congress will enact that every able-bodied young American shall be trained to defend his Country; and that, for a reasonable period after his training, he shall be incorporated in a reserve . . ."

This method of maintaining the Army should not be confused with the totalitarian system now used by Germany and Japan. Our army will differ in four respects:

1. It will enable individuals to assume leadership according to their abilities.
2. The civilian population, by means of reserve officers and enlisted men, will through public opinion help determine public questions relating to military affairs.
3. A large standing army need not be maintained when reserves in civilian life can effectively perform the required job at less cost to the Government.
4. This method will continue our national tradition of a small professional army with large civilian reserves begun by President Washington's proposal to the First Congress as one of the essential foundations of the American nation.

## FIELD ORGANIZATION

Recently, Army personnel were classified as to their combat missions for purposes of statistical analysis. The major classifications of troops and units are:

**Combat:** Those units or organizations whose primary mission is destruction of enemy forces or installations.

**Combat Support:** Those units or organizations whose primary mission is to furnish operational assistance for the combat elements.

**Combat Service Support:** Those units or organizations whose primary mission is that of service in the support of the combat and combat support elements.

**Service Support:** Those units or organizations whose primary mission is that of service in the support of the combat and combat support elements and who normally operate in the communications zone.

**Training:** Those units or organizations whose primary mission is to train or be trained.

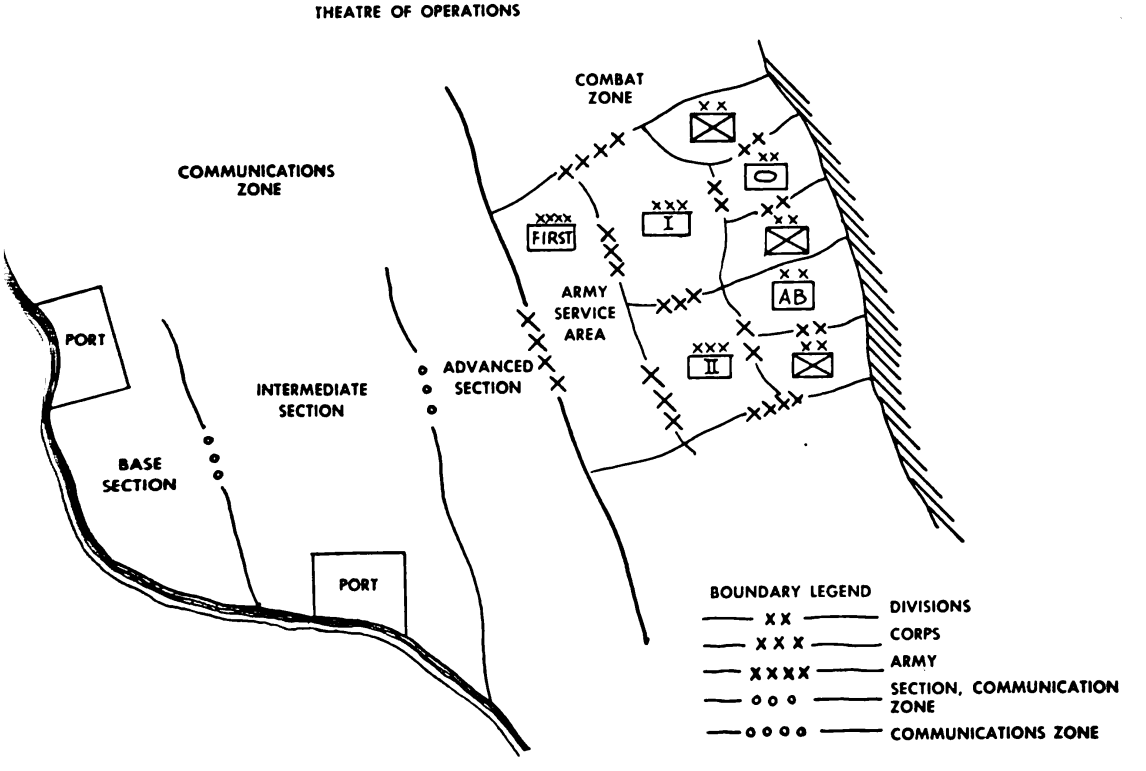



**Figure 7. Organization of a Theater of Operations.**

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**Overhead:** Those units or organizations or that personnel whose primary mission is to man headquarters and installations such as: theater, department, base, and defense command headquarters; communications zone headquarters and sections; theater transportation, communication, and construction service; Joint Chiefs of Staff group; Secretary of War group; Chief of Staff group; miscellaneous War Department group; civilian agencies group; Veterans' Administration; and headquarters of the major commands, service commands, and of the Air Service, Materiel, and Air Transport Commands.

Other miscellaneous classifications may be found in War Department Circular 356, 2 September 1944.

**Definitions**

Before continuing, the following definitions should be understood:

*Theater of War:* The theater of war comprises the areas of land, sea, and air which are or may become directly involved in the conduct of war.

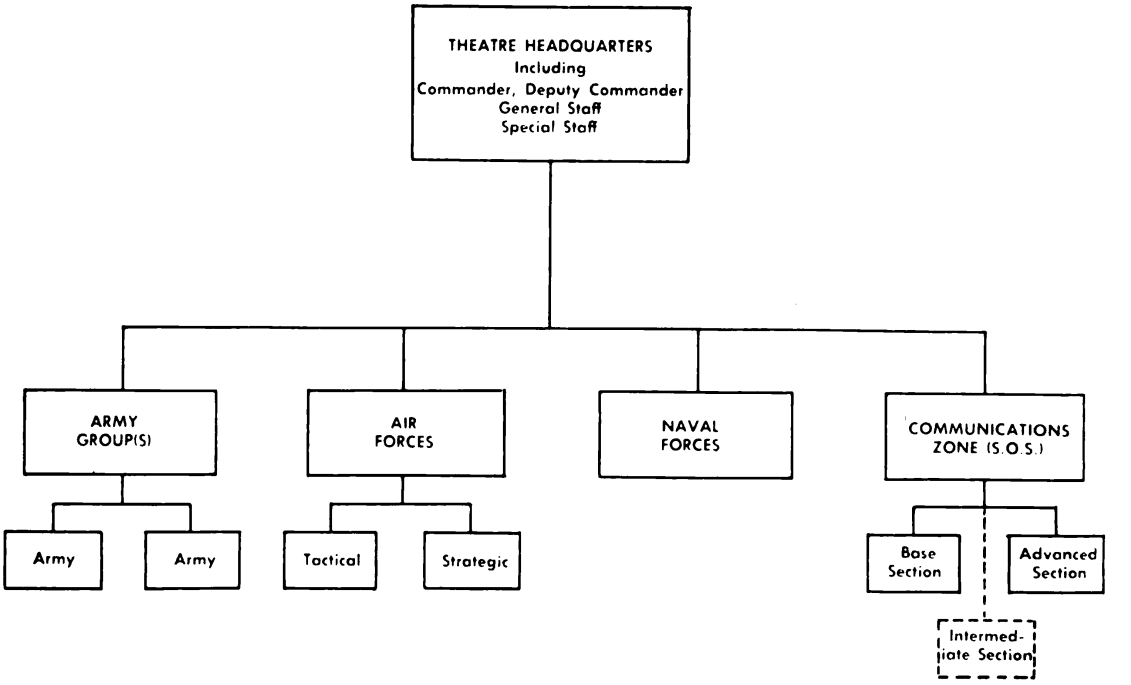



**Figure 8. Theater Headquarters.**

*Theater of Operations:* This designates that portion of the land, sea, and air areas of the theater of war necessary for either offensive or defensive operations pursuant to an assigned mission, as well as for the efficient administration of these military operations. To decentralize administration, a theater of operations is normally divided into a combat and a communications zone. (See Fig. 7)

*Theater Personnel:* Troops assigned to a theater of operations include task forces or components of air, ground, and naval forces, all placed under the control of the theater commander. (See Fig. 8)

*Base Commands and Defense Commands:* No absolute distinction can be made between theaters of operation, base commands, and defense commands. In general, however, the term 'theater of operation' is more inclusive, being applicable to an extensive area in which military operations of any type may be conducted, whereas the term 'base command' normally designates a smaller area in which the primary mission is the maintenance of a military base or bases. 'Defense commands' usually are areas in which contemplated operations are restricted to tactical or strategic defense.

*Combat Zone:* The combat zone is that portion required for active operations and immediate administration of the combat forces. Where a theater of operations is of limited usable area, such as an island base or an isolated continental area, territorial subdivision may not be feasible, and the administrative establishments serving the theater as a whole may be dispersed over the area as conditions require.

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*Communications Zone:* The communications zone includes all the territory of the theater of operations between the rear boundary of the combat zone (designated by the theater commander) and the rear boundary of the theater (fixed by the War Department).

*Zone of Interior:* This comprises the area of the national territory exclusive of area included in the theater of operations.

**Task Force.** A task force is a tactical grouping composed of one or more arms or services constituted for a specific mission or operation. Excellent examples of task forces were those used in the invasions of North Africa on 8 November 1942 and of France on 6 June 1944. Planning for the composition and mission as well as training, equipment, and strength of the task force must include a detailed study of:

1. The area of operations;
2. Lines of communications;
3. Climatic conditions;
4. Type of enemy resistance to be expected.

Without this prior planning, the mission of the task force may result in failure. The force must be properly organized, suitably equipped, and thoroughly trained for the operations in the particular area concerned. For the successful accomplishment of the assigned mission, the commander must assure the concentration and complete coordination of the land, sea, and air forces allotted him.

Components of a task force must be permitted to preserve their tactical and administrative unity. The task force principle does not replace normal command functions, but simply unifies components of large units (armies, corps, or divisions) in order to accomplish a given military task.

## COMBAT ZONE

The combat zone in a theater of operations is the forward area required for active operations and immediate supervision of the combat forces. Its depth is dependent upon the size of the forces assigned, the nature of the operations contemplated, the character of the lines of communication, important terrain features, and enemy capabilities. It is divided into army, corps, and division areas, each comprising the zone of operations of the unit to which it pertains.

**Army Service Area.** Extending forward from the rear boundary of the combat zone to the rear boundary of the corps is the army service area. Here are located the mass of army administrative establishments, including Ordnance field shops and depots, to serve forward establishments as well as troops in the area. In an advance, the rear boundary of the combat zone is stepped forward in order to relieve commanders within the combat zone from the responsibility of administration of as much territory as possible.

**Army Group.** The army group, a tactical command in World War II in certain theaters, combines two or more field armies and coordinates their operations. (See Fig. 8).

**The Army.** The Army is normally the largest administrative and tactical unit in the combat zone. The army commander is responsible for organization and operation of administrative facilities to serve components of his command in addition to being responsible for their tactical direction. He is also responsible for defense of the army service area.

The Army is a flexible combat force capable of independent operations. It consists of two or more corps and reinforcing combat and service troops. Its organization will vary in accordance with the requirements of the particular theater in which it is used. It will be organized with headquarters and headquarters detachments (T/O 200-1, 26 Dec. 43, as changed) and special troops. The administrative establishments of the army are intended to relieve its assigned corps of as many administrative functions as possible, thereby permitting the corps to be primarily tactical organizations.

**The Corps.** (See Figure 9). The corps will be found normally as an assigned component of an army and will in turn have assigned to it two or more divisions plus corps troops. The organic elements include a headquarters (T/O & E 100-1); headquarters company (T/O & E 100-2); a military police platoon; a signal battalion; a headquarters and headquarters battery, corps field artillery; and a

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field artillery observation battalion. As stated above, a corps which is part of an army will be primarily tactical. It is not normally a link in the supply chain between army and divisions; but a separate corps would, of course, be administrative as well as tactical, since it is in effect a small army.

The corps will have other units assigned to it in accordance with its combat mission. These will include groups or battalions of field artillery, antiaircraft artillery, tanks, tank destroyers, engineers, and cavalry reconnaissance. In combat, nondivisional units in the corps will be employed most effectively in groups or under divisional control. Attachments of such units to divisions by the corps will not be considered permanent.

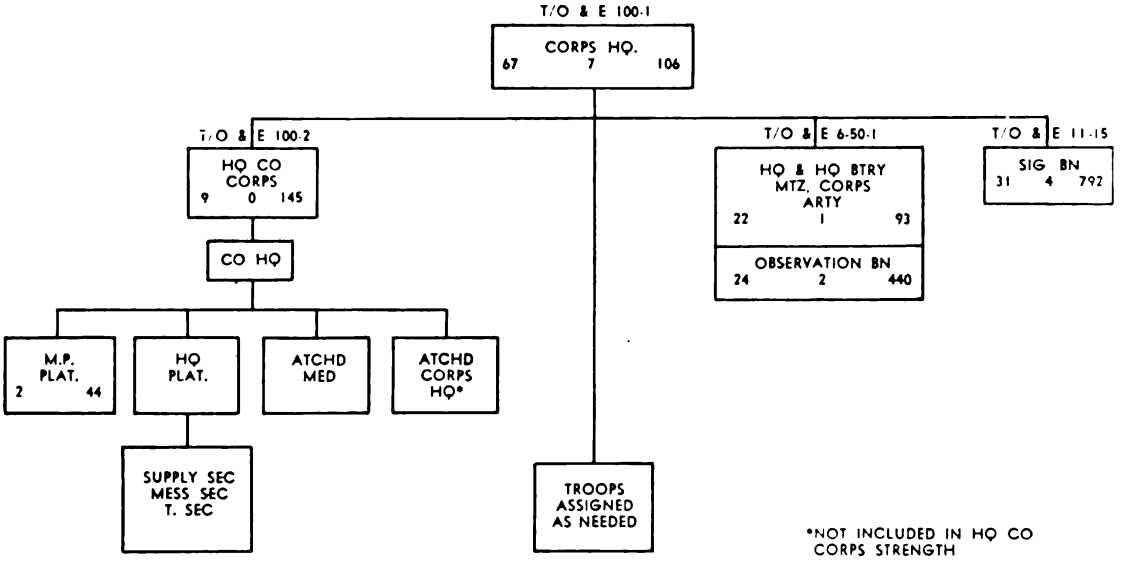



**Figure 9. The Corps.**

**Divisions in General.** The division is the basic unit of the combined ground arms and services. It is the smallest of the 'larger units' and is both administrative and tactical. It is not organically provided with special combat troops (armored and chemical) nor with special defensive units (antiaircraft artillery and tank destroyers) to meet all situations. Organic assignment of such service and defensive units is impracticable from the viewpoint of economy of force; they will be provided as required from corps and army pools.

## INFANTRY DIVISION

This basic type of division within the Army is organized under T/O & E 7 and contains the required combat, reconnaissance, service, and command elements to perform major battlefield missions. It is frequently called the 'yardstick of battle' as the infantry division is the most common of the major self-administered field units actually doing the fighting. (See Fig. 10)

**Combat Elements.** The combat elements of the division are infantry, artillery, and engineers.

The division has three infantry regiments, each composed of a headquarters and headquarters company, a service company, an antitank company, a cannon company, and three rifle battalions. While the rifle battalions do the major fighting within the regiment, the cannon and antitank companies support and assist the battalions with six 105-mm short-barrel howitzers in the cannon company and nine 57-mm guns in the antitank company. Other firepower support will be found within the battalions. See Fig. 11 for organization of the Infantry Regiment.

Each of the three rifle battalions within the infantry regiment is composed of a headquarters and headquarters company, a heavy weapons company, and three rifle companies. The heavy weapons company supports the rifle companies with heavy, water-cooled machine guns and 81-mm mortars.

The rifle companies are organized into three rifle platoons and one heavy weapons platoon and are provided with a small company headquarters. The weapons

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platoon contains four sections armed with combinations of Browning automatic rifles, light (cal .30) machine guns, and 60-mm mortars. Each of the rifle platoons, however, contains three squads of twelve men each led by staff sergeants. The squads are armed with M-1 rifles; each has a Browning automatic rifle two-man team. The company has five 2.36-inch rocket launchers to support its components.

Artillery support for the major components of the division is rendered by separate units above the size of the infantry regiments. This is accomplished by divisional artillery, composed of a divisional artillery commander, three 105-mm howitzer battalions and one 155-mm howitzer battalion. Each of the artillery battalions contains a headquarters and a service battery and three firing batteries. (Batteries of artillery are similar to companies of infantry.) Each firing battery contains four sections, each equipped with one gun. Thus, there are 36 105-mm howitzers and 12 155-mm howitzers within the divisional artillery which support the infantry regiments.

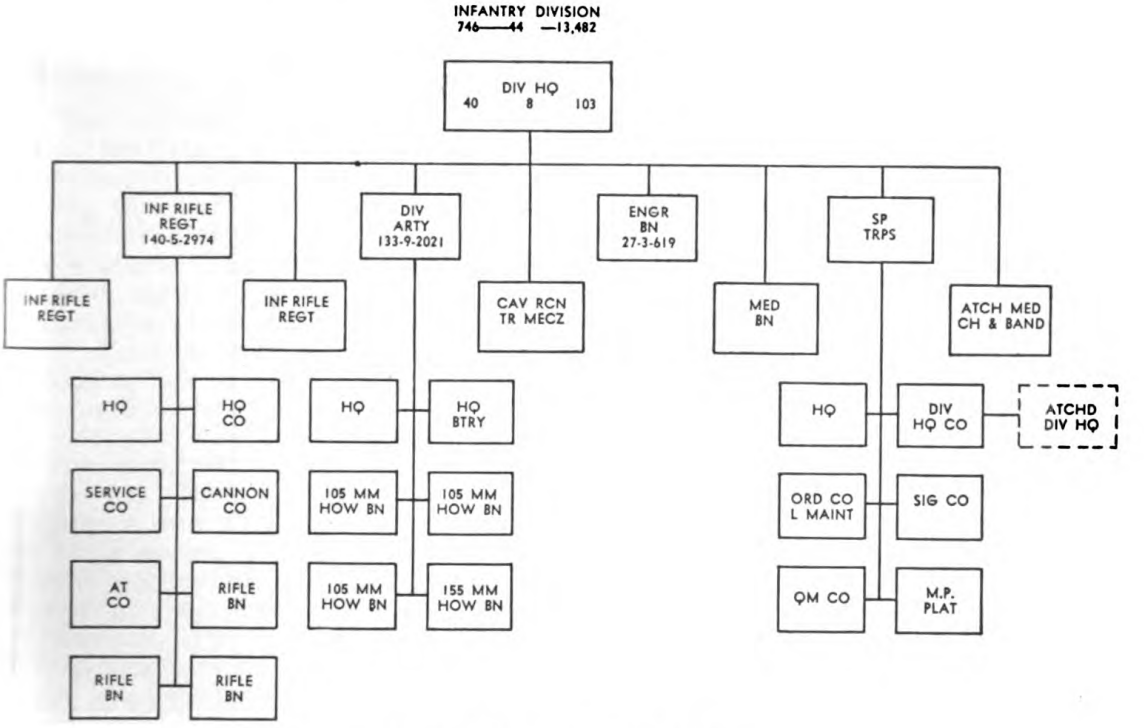



**Figure 10. Infantry Division.**

Since there are three infantry regiments and three 105-mm howitzer battalions within the division to form the heaviest bulk of mobility and firepower, combat teams are frequently formed. These combat teams essentially contain one infantry regiment and one 105-mm howitzer battalion. Frequently the three components of the divisional engineer battalion and medical battalion will also be assigned to the three combat teams that can be formed within the division. Combat teams may or may not be used in combat; yet, in the Southwest Pacific area, the small size of some of the islands is such that much of the fighting is done by combat teams instead of full divisions.

The combat engineer battalion mentioned above is assigned directly to the division headquarters, but can be broken up into its three combat engineer companies for the combat teams while its headquarters and headquarters and service companies can remain with division headquarters. This unit is organized for construction and demolition needs of the infantry and for normal engineer service to the entire division.

**Other Elements.** The reconnaissance element of the infantry division is its mechanized cavalry troop. This troop contains a headquarters and three reconnaissance platoons equipped with scout and armored cars. The platoons may be

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attached one to each of the three teams when the division operates by combat teams. Normally, the mission of this troop is the security of flanks and rear, finding and fixing of the enemy, screening movements, and other related cavalry functions.

The service elements include an Ordnance Light Maintenance Company, a Quartermaster Company, and a Medical Battalion. These are part of the Division Special Troops, being assigned directly to the division headquarters. It should be noted that the medical battalion is composed of three collecting companies and one clearing company. The collecting companies funnel casualties to the clearing company, which sends them to hospitals in the rear of the division for care and treatment.

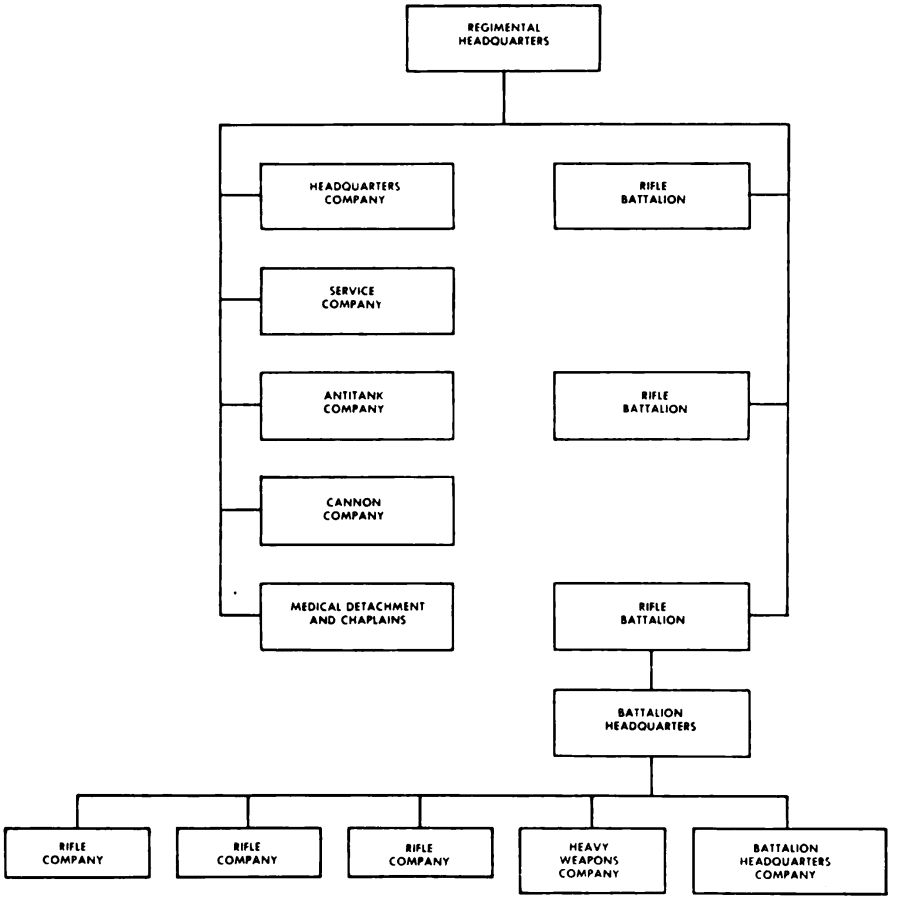



**Figure 11. Infantry Regiment.**

The command element of the infantry division is the division headquarters. It is divided into a forward and a rear echelon, each operated by staff sections assigned by general policy and the local division commander.

The remainder of Special Troops (the Signal Company and the Military Police Platoon) should be considered as a portion of the command element although they have definite service functions. Note also that the Signal Company is organized so that it can be detached to combat team commanders when desired.

**Tactical Employment.** With its good balance of firepower, mobility, shock action, and flexibility, this division has the basic combat power for the offensive and the defensive on all but the most extreme forms of terrain. Its chief offensive role is that of close combat with the enemy. It can hold ground it takes, open the enemy lines for exploitation by armored units, and, with some modification, be used in landing operations on hostile shores.

However, the division is not organically equipped to meet all situations. Even on the best of terrain and with a maximum of favorable features, it may need help, for the policy of the War Department has been to keep the Infantry Di-

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vision from being burdened with personnel and equipment beyond its basic, uniform, daily needs.

Typical attachments of combat units from higher echelons are light and medium field artillery, tanks, tank destroyers, chemical mortars, antiaircraft artillery, and combat engineers. To motorize the foot troops of the rifle companies for a movement in one echelon, for example, the usual attachment is a Quartermaster Troop Transport Battalion. For operations in a combat zone, other attachments often include civil affairs units, prisoner of war interrogation groups, order of battle teams, air liaison officers, and counterintelligence units.

These attachments alone do not make the division effective as an independent force. It is usually in operation with one or two more divisions in the same corps, all supported directly by the corps combat and service troops and by the army troops and their installations. The particular combat aid that corps furnishes is adequate artillery support, for corps have more and heavier artillery than the divisions. The corps reconnaissance is also invaluable to the component divisions. The centralized corps command gives the whole body the tactical direction required and the strength of each division comes significantly from the collaboration of all of the other troops in the corps.

## ARMORED DIVISION

This division is organized under T/O & E 17 and its components are found in other tables of this series. Like the Infantry, it is an organization of combined arms supported by services. The self-contained battalion is its basic tactical unit, giving the desired flexibility in its organization for combat. (See Fig. 12)

**Combat Element.** The tank battalion is the main offensive striking power in the armored division. There are three tank battalions, each of them composed of a headquarters and headquarters company, service company, three medium tank companies (Companies 'A,' 'B,' and 'C'), and one light tank company (Company 'D'). Each medium and light company has seventeen tanks and the headquarters company has one (in lieu of a recovery vehicle). In addition, each battalion has six medium tanks which mount 105-mm howitzers, three to the headquarters and one to each medium company.

The armored infantry within the armored division is also composed of three battalions. Each consists of a headquarters and headquarters company, service company, and three rifle companies. These units differ from other infantry chiefly in their means of transportation and their additional firepower. In each of the battalions, besides small arms, there are nine 75-mm howitzers on motor carriages for assault purposes.

Division Artillery is likewise composed of three battalions, each consisting of a headquarters and headquarters battery, a service battery, and three armored field artillery batteries. In each battery there are six 105-mm howitzers (motor carriage, M-7).

The armored engineer battalion consists of a headquarters and headquarters company and three engineer companies, organized and equipped to support the particular engineer requirements of the division.

**Other Elements.** The reconnaissance element consists of the mechanized cavalry squadron. This consists of a headquarters and headquarters troop, four reconnaissance troops (Troops 'A', 'B', 'C', 'D'), an assault gun troop (Troop 'E'), and a light tank company (Troop 'F'). The four reconnaissance troops distinguish this squadron from the separate squadron which has only three; likewise, the assault gun troop has four platoons instead of the three in separate squadrons.

The division trains consist of the medical battalion and the ordnance maintenance battalion (referred to later).

The command element includes the following: headquarters; headquarters company; armored signal company; military police platoon. The five subordinate headquarters are composed of two combat command headquarters and headquarters companies; a reserve command; a headquarters and headquarters battery, division artillery; and a headquarters and headquarters company, armored division trains.

As in the Infantry Division, the headquarters of the division is divided into forward and rear echelons; those staff officers essential to combat are at the forward echelon with the commanding general, and the others, with their sections, are at the rear.

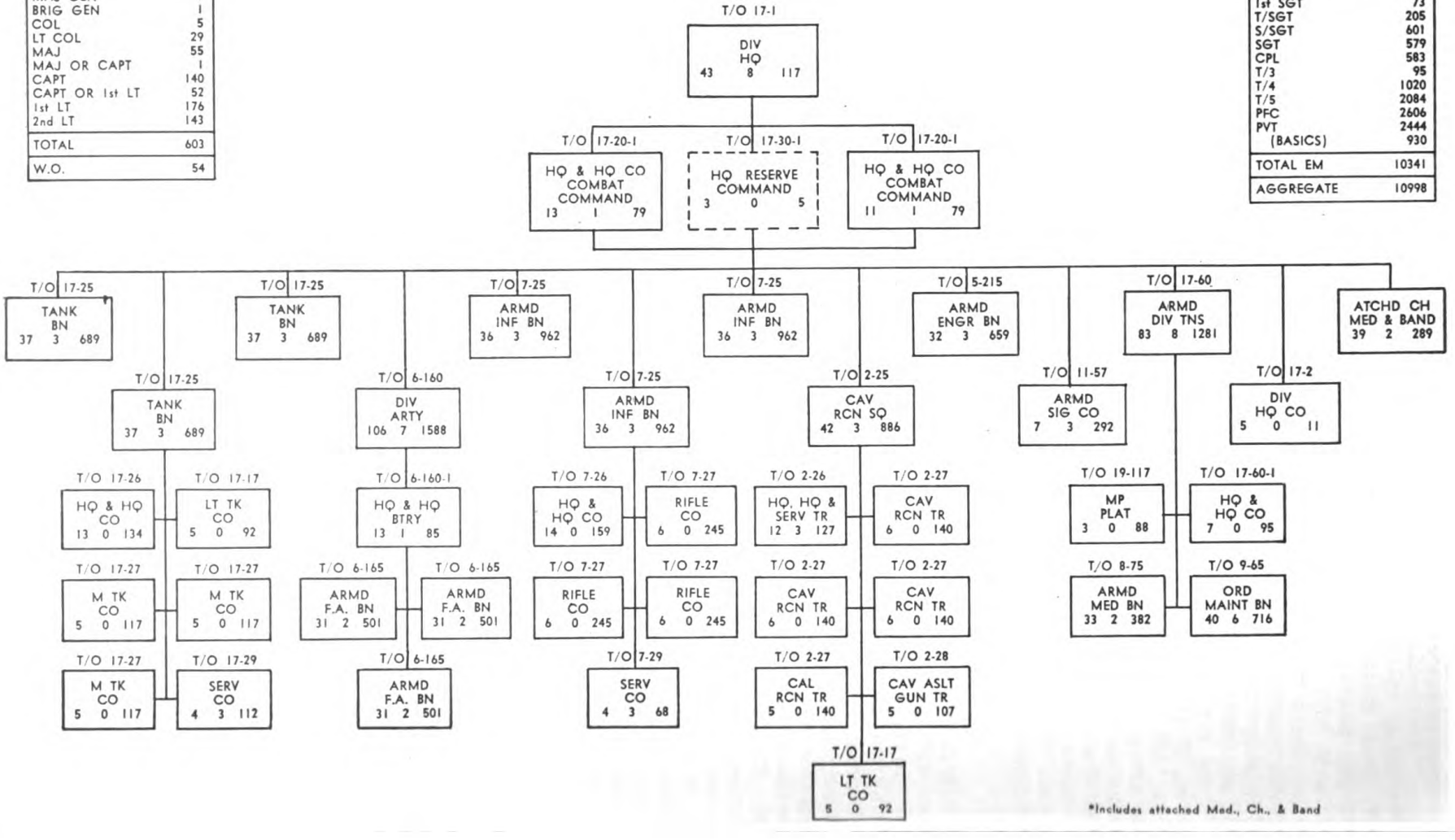
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# ARMORED DIVISION
603 54 10341*

| | |
|---|---|
| MAJ GEN | 1 |
| BRIG GEN | 1 |
| COL | 5 |
| LT COL | 29 |
| MAJ | 55 |
| MAJ OR CAPT | 1 |
| CAPT | 140 |
| CAPT OR 1st LT | 52 |
| 1st LT | 176 |
| 2nd LT | 143 |
| TOTAL | 603 |
| W.O. | 54 |

| | |
|---|---|
| M/SGT | 51 |
| 1st SGT | 73 |
| T/SGT | 205 |
| S/SGT | 601 |
| SGT | 579 |
| CPL | 583 |
| T/3 | 95 |
| T/4 | 1020 |
| T/5 | 2084 |
| PFC | 2606 |
| PVT | 2444 |
| (BASICS) | 930 |
| TOTAL EM | 10341 |
| AGGREGATE | 10998 |




*Includes attached Med., Ch., & Band

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**Tactical Employment.** In their role during decisive operations, armored units are used to penetrate known 'soft spots' or to envelop the enemy's weak, extended, or exposed flank or flanks. Armor thus is in a position to destroy the enemy from his rear areas and along his communication lines. The boldness and speed of execution of these operations distinguish them from the usual infantry schemes of maneuver. Tanks are employed in masses to gain success despite losses. For successful operations, favorable tank terrain is essential, surprise is important, and air superiority is desirable.

The self-contained combat battalions are the nucleus of the combat groupings by which the armored division fights. In effect, these combat groupings, under the combat command headquarters provided in the T/O, are small task forces. They are built on the basis of standing operating procedure or are grouped specially for a certain mission. Thus, one might be strong in tanks, the other in infantry, or each of them evenly matched; artillery might be kept together or divided among the commands. Verbal orders are normal. Fragmentary orders are more likely to be used than complete ones and written orders are used only when sufficient time is available. Communication by radio is virtually a requirement much of the time.

The obvious employment of tank units is in the attack. The artillery becomes the base of fire, the organic infantry eliminates the enemy's antitank installations, and effective reconnaissance is furnished by the cavalry squadron. Aid is received from the coordinated effort of air support, army and corps artillery, and other divisions, including airborne troops. Antiaircraft units, tank destroyers, and additional tanks are typical attachments.

**Supply and Maintenance.** The special mission and method of armored operations require special supply support. The tank or other combat vehicle is the first means of supply, each carrying ammunition, fuel, and rations; all personnel are trained in first aid and in crew maintenance. Unit and division trains are the other means available for supply and maintenance. There are two general methods of supply: (1) The higher unit advances supplies to points within easy trucking distance of the division; or, (2) the higher echelon attaches additional supply vehicles to the division to make it self-sustaining for the required period of an operation.

In the armored division, maintenance is obviously of great importance. Each company has recovery and half-track vehicles which carry maintenance crews, repair tools, spare parts, and limited amounts of gas, oil, and grease for emergencies. Company maintenance vehicles remain with their companies except during actual combat; then they operate from the unit service park and follow the companies as closely as possible.

Combat battalion maintenance platoons support company maintenance with their half-tracks, heavy wreckers, and tank recovery vehicles. Each crew is equipped with tools and spare parts. In combat, platoons operate forward with the combat trains. The Ordnance Maintenance Battalion supports the combat battalion service elements in repairing materiel beyond their capabilities. Consisting of a headquarters and headquarters company and three maintenance companies, it performs third echelon maintenance, and is the source of ordnance supply within the division. For further information about this battalion, see 'Ordnance Troop Units.'

**Capabilities and Limitations.** The Armored Division has great road and cross-country mobility, firepower, armored protection, and ability to crush personnel and equipment. Destruction of enemy artillery, supply, and headquarters installations, as well as reserves in rear areas are among its most useful missions. Under favorable conditions of terrain, weather, tactical surprise, and air support, it can exploit the break-through of another division or outflank a less mobile enemy. It should be used on vital objectives where bold maneuvers will result in decisive advantages.

The limitations of the armored division arise from the nature of its equipment and type of operations. It is held up, for example, by streams, swamps, and mountains. It is vulnerable to well-placed antitank fire as well as man-made obstacles such as mine fields, antitank ditches, and traps. But in its own field of operations, it is essential to fluid combat and, with the aid of infantry, the majority of its limitations are surmounted.

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## THE AIRBORNE DIVISION

This is a special type of division (T/O and E 71) in which personnel and equipment have been reduced to facilitate transportation by air. Its missions are normally deep within the enemy territory where advantage is taken of strategic mobility and the element of surprise. While smaller and more lightly equipped than the Infantry Division, its organization is comparable. (See Fig. 13.)

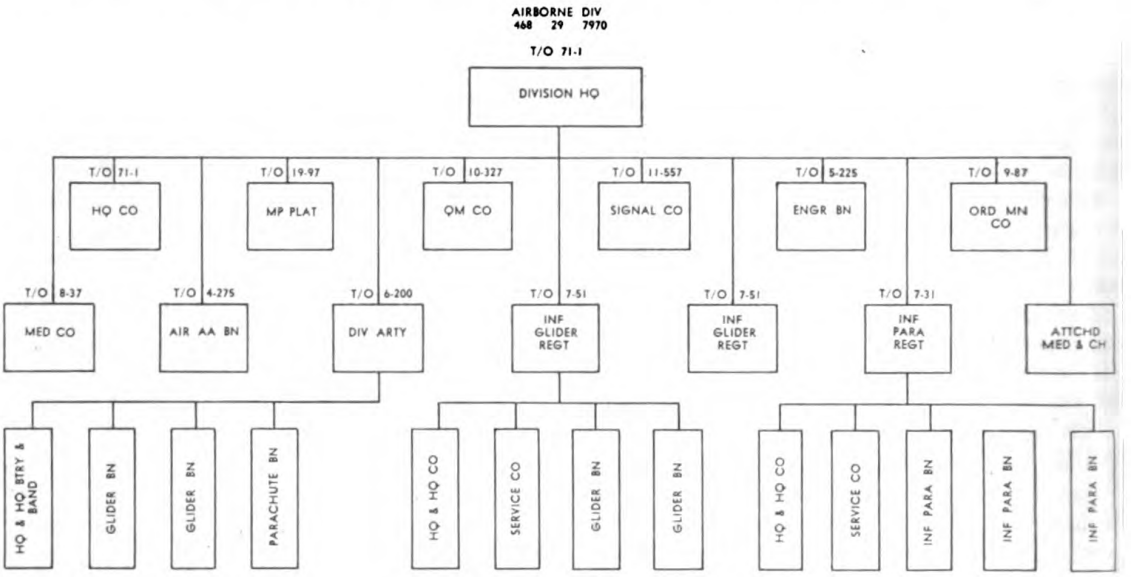



**Figure 13. Airborne Division.**

## THE LIGHT DIVISION

This is a special type of infantry division in which personnel and equipment have been reduced to facilitate operations in difficult terrain, such as mountains, jungles, etc. As of January 1945, only one is in existence and there seems to be no indication that it will become more important as a type of division.

## SMALLER UNIT ORGANIZATION

An organization of troops is referred to as a tactical unit, as an administrative unit, or as a unit that is both tactical and administrative. All of the units in this discussion are tactical but some are administrative as well. Divisions, for example, are both administrative and tactical.

A tactical unit is an organization intended to serve as a single unit in combat. It may be considered as an independent unit in the field but, for administrative purposes only, it may also be an element of a larger unit. If it can be administered independently, it is also called an administrative unit. A company is a military organization which, for purposes of administration, is regarded as a distinct and independent unit. Squads or platoons are tactical units within a company that depend upon the company for administration.

**Brigades** are tactical units smaller than divisions and larger than regiments. Usually a brigade will be commanded by a Brigadier General and will consist of troops of a single branch, such as artillery or cavalry. This organization is not now found in our streamlined Infantry Division; it is, however, found in the Cavalry Division and in such special organizations as the Engineer Amphibious Brigade (T/O 5-510).

**Regiments and Groups** are administrative and tactical units smaller than a brigade and are composed of two or more battalions. They may be of fixed or flexible composition as to number and type of battalions or their equivalent. The regiments of fixed composition are usually found in the infantry division where three battalions compose, with proper supporting units, one regiment. Formerly many of the arms and services were organized into regiments of fixed strength by Tables of Organization, but the newer trend is toward greater flexibility

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Groups are now generally found throughout the Army, all organized on more flexible principles than formerly. Whereas the infantry regiments are fixed in size, the following are organized into groups where the limiting factor is a requirement of at least two battalions: Field Artillery, Coast Artillery, Anti-Aircraft, Cavalry, Engineer, Tank Destroyer, Quartermaster, Ordnance, etc. A field artillery group, then, may consist of battalions of one type, such as 105-mm howitzer, or may be composed of battalions of various types depending upon the situation and availability of artillery battalions.

**Combat Teams.** The combat team within an infantry division is a tactical grouping for training and fighting. It consists of an infantry regiment and a battalion of field artillery plus appropriate medical and engineer troops; thus units of different branches act together under one command. Combat team organization is created or ceases on short notice by division order. In the armored division, the fighting team is called a combat command.

**Battalion.** The battalion or its equivalent (which in cavalry is a squadron) is a tactical unit made up of a headquarters and two or more companies, batteries, or similar organizations. Separate battalions may be administrative as well as tactical; frequently such battalions are assigned to Army, or by Army to subordinate units as the situation requires. Typical examples of such separate battalions are: Tank Battalions, Tank Destroyer Battalions, Ordnance Battalions (T/O and E 9-76), Ammunition Battalions (T/O and E 9-15), Medical Battalions, Engineer Battalions, etc.

**Companies.** The company is the smallest tactical and administrative unit. Units which correspond to an infantry 'company' are the cavalry troop and the field artillery battery. Generally, the company or its equivalent operates its own mess, keeps important military records, and is a link in the chain of supply.

**Squads and platoons** which are components of companies are tactical units having no administrative function. In certain cases, such as a separate bomb disposal squad, units less than a company may be administrative.

## COMMUNICATIONS ZONE

**General.** Within the communications zone are located the principal establishments of supply, transportation, evacuation, and other administrative agencies required to serve the theater of operations as a whole. The zone is a link in the chain of supply and evacuation between the combat zone and the zone of the interior. Figure 14 shows the organization of a communication zone headquarters.

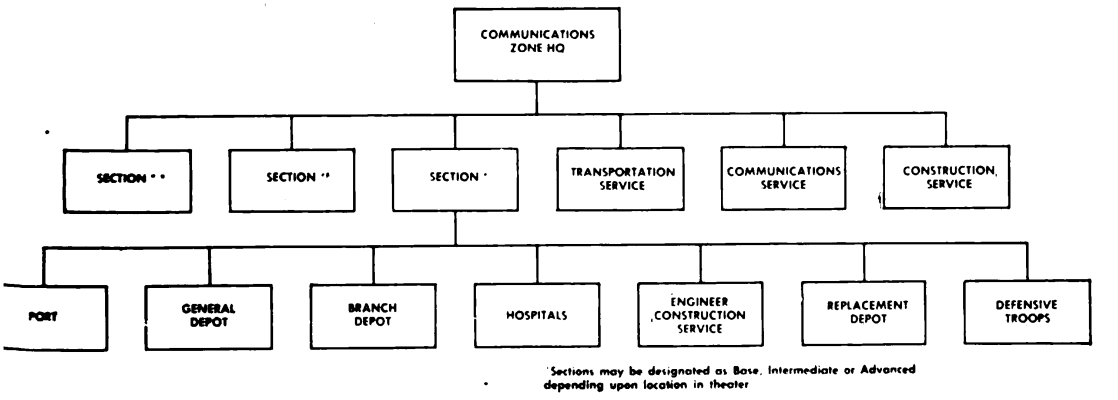



**Figure 14. Communications Zone Headquarters.**

Forward supply establishments contain balanced stocks maintained at a level determined by experience to be sufficient for the immediate needs of the troops in the combat zone. In the rear establishments, supplies arriving from the zone of the interior or obtained by local procurement are received, classified, and stored for subsequent movement to advance establishments.

Normally the commander of the communications zone is charged only with the ground defense (including defense against sabotage) of the communications zone; the air defense is provided for the theater as a whole. Suitable combat units, preferably highly mobile troops, are assigned to the communications zone for ground

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defense. The defense may be organized on a territorial basis with missions and troops assigned to section commanders. This includes providing suitable bomb disposal personnel to handle any delayed action bombs or shells that may fall in or near the installations. Under policies laid down by the theater commander, the communications zone commander may be given authority to employ other combat forces in the communications zone.

**Station Services.** Station services are assigned to certain base units because they are not self-sufficient. Ports of debarkation, depots, transportation centers and other installations must be reinforced with typical services for this reason.

These station services include Ordnance, Signal, Medical, Engineer, Finance, and Guard Services. A base depot, for example, might be furnished an Ordnance unit (such as a separate platoon or company equivalent, organized under T/O and E 9-500) to provide the depot with proper Ordnance service. A Signal unit might also be assigned as a station service to provide the depot headquarters with a message center and all necessary signal communication. Ports of debarkation might be assigned Medical units organized under T/O and E 8-500 to make them medically self-sufficient. This applies also to Finance sections, Engineer units, Quartermaster units, Postal units, and Interior Guard units assigned to communications zone establishments as required.

**Headquarters.** Headquarters organization of the communications zone, similar to that of any command, includes a commanding general, assisted by a general and a special staff. Troops are assigned to the communications zone by the theater commander for operation of its establishments and for its defense. Organization of the communications zone must be adapted to the plan of operations and the actual conditions in the theater of operations; therefore, the communications zone will not be organized in the same manner in every theater—each case will present a different problem.

**Components.** The organization will normally include ports of debarkation, depots (supply, repair, and replacement), hospitals, and transportation, communications, construction, and such other services as required.

In the interests of economy of force, efficiency of operations, and maintenance of theater inventories at a minimum consistent with actual needs, unnecessary decentralization and dispersion of activities should be avoided. Large consolidated supply and repair depots, even though widely dispersed, are more efficient than many small establishments. The storage of theater supplies in a few (rather than many) depots simplifies overall administration and inventory control, reduces pipeline and other distribution problems, and permits controlled pooling to supply theater shortages.

The first establishments organized under the Headquarters, Communications Zone, are those of the base section, which, however, may initially operate as an advanced section. In time, depots of the zone may be so extended in depth that the zone is divided into a base section and an advance section in order to secure centralized control and decentralized operation. It may become desirable to divide the zone into three sections designated in order from rear to front as base, intermediate, and advance. Unusual conditions may require subsections.

It is essential that ports of debarkation be cleared rapidly. This can best be accomplished by establishment of a general depot and the necessary number of camps for the reception of personnel in the vicinity of each major port. The capacity of the general depot will be governed by the size of the force to be supplied and the capacity of the port or ports through which supplies are received.

In small forces, the port organization might function as a branch of the general depot, thus reducing administrative overhead, labor, and motor pool requirements. In addition to the administration of the depot, the depot commander may be assigned area responsibilities, thereby eliminating the necessity of creating additional subsection headquarters.

**Ports of Debarkation.** The number and capacity of ports required depends upon the size of the force to be served, the nature of the operations, and the number of ports available. Since it is essential that provision be made to unload ships at a rapid rate, the port organization during unloading operations should be augmented by all available troops (even combat troops when necessary). In determining the port troops required, cognizance should be taken of the availability

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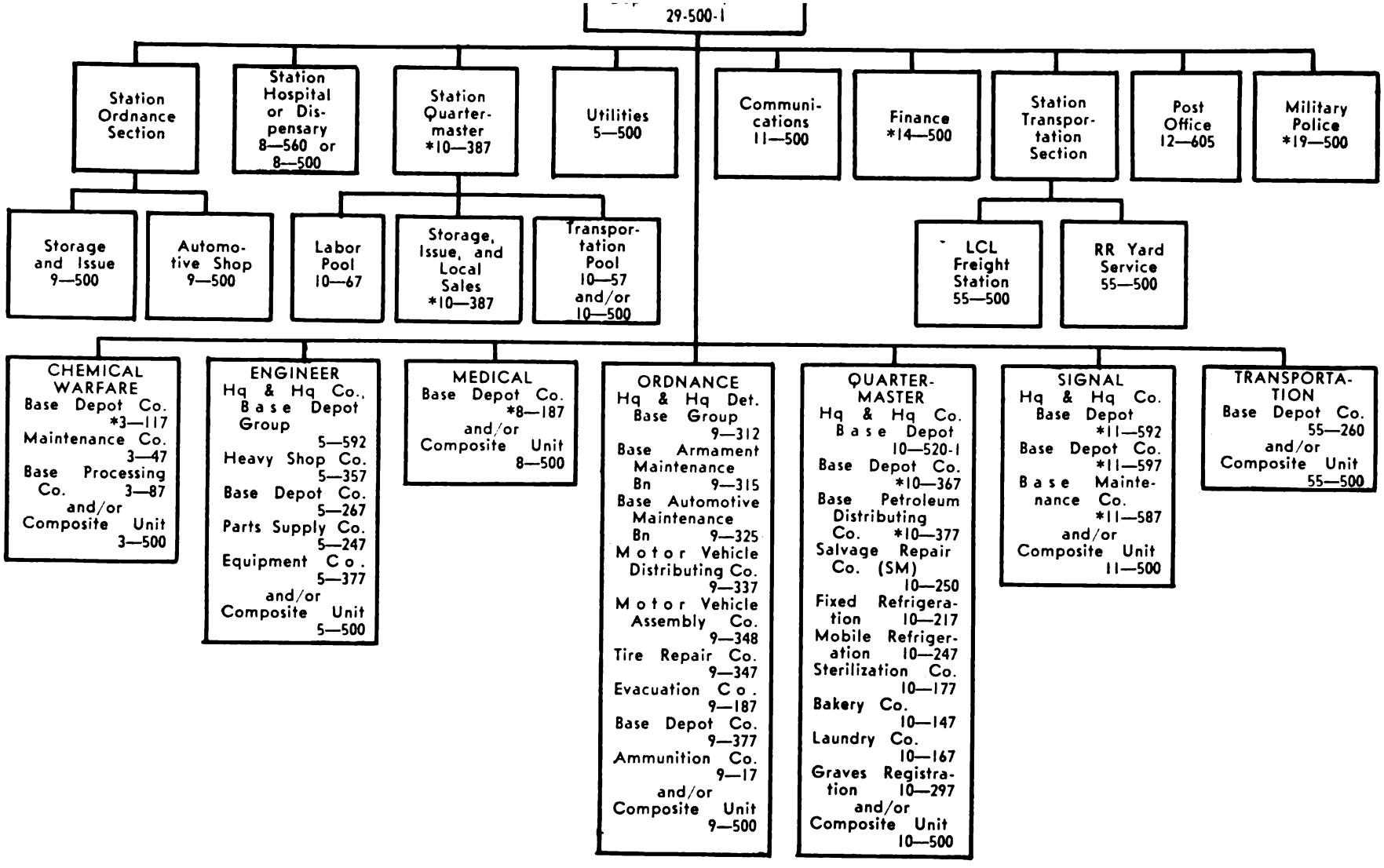



**Figure 15. Communications Zone Depot.**

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of other troops for intermittent port use. Large ports of debarkation are self-sufficient establishments normally comprising a port headquarters, station services, the required number of port companies, and the necessary transportation auxiliary services organized under T/O and E 55-500.

**Depots.** Depots receive, store, classify, and issue supplies, maintaining reserve stocks at prescribed levels. They are classified as branch or general, depending upon whether they stock supplies procured and issued by a single or by two or more arms or services. In general, they are administratively self-efficient. Communications zone depots are also designated as advance, intermediate, or base, depending upon the section in which they are located. Their stock levels are determined by the theater commander.

The chief of each technical service in the communications zone is charged with the maintenance of his stocks at the prescribed level and with furnishing the necessary personnel for functioning of his depot sections. He keeps records that will enable him to equalize stocks between depots and to make prompt reports, when required, of the kind, location, and status of supplies.

General depots are organized into technical sections corresponding to the supply services they represent; for example, 'Quartermaster Section, Communication Zone General Depot No. 3.' The depot commander is designated by the commander of the communications zone and operates directly under him. The commander of a general depot coordinates the activities of the service sections in the depot in such matters as the assignment of storage space, the enforcement of safety measures, and the use of the common labor pool, utilities, and transportation. He leaves to section commanders the internal management of their respective sections.

The chief of each service having supplies at a general depot is represented thereat by a commissioned officer designated as depot supply officer; for example, "Ordnance Supply Officer, Communications Zone General Depot No. 1." Each depot supply officer at a general depot is responsible for reception, storage, care, maintenance, and issue of all supplies pertaining to his service.

Organization and administration of branch depots are direct responsibilities of the chiefs of the supply services of the communications zone. The commander of a branch depot has the same responsibilities as a general depot supply officer, and is, in addition, the commanding officer of the station. (See figure 15)

Since branch depots require more or less complete station services, the general depot type organization, with a pooling of the station services and depot administration, provides a more efficient and economical organization.

**Hospitals.** The communications zone provides hospitalization for the theater. The number and type of medical units in the communications zone depends upon location of the zone in relation to the zone of the interior, extent of the zone, number of troops involved, character of hostile resistance, and policy of evacuation.

As base type units have no attached medical personnel, medical service is provided by dispensaries (T/O and E 8-500), by station hospitals, or by both. Where station hospital facilities are adequate, no dispensary will be assigned.

Station hospitals may be assigned to and administered by communications zone establishments, or they may be operated as separate organizations to serve an area. In situations where the strength of a port, depot, or other communications installation is sufficient to warrant direct assignment, an appropriate station hospital is assigned to and becomes an organic part of the installation.

Other communications zone hospitals, such as general and convalescent hospitals or camps, are normally operated as independent communications zone establishments.

**Signal Communication Service.** Local signal communication service is provided for headquarters and communications zone establishments as a station service. Units required to provide this service are normally organized as separate numbered signal service companies or platoons, and are assigned to the appropriate communications zone headquarters, establishment, or service for administration.

The construction, operation, and maintenance of central exchanges and long distance wire lines are functions of the signal communication service, but local exchanges at various headquarters are not. This signal service includes a central signal service headquarters organization; district or division offices; signal con-

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struction battalions or separate companies; and the required number of signal service battalions, companies, or platoons, the components of which are included in the Signal Service Organization (T/O and E 11-500).

**Engineer Construction Service.** Construction in the theater is normally assigned to the engineer construction service, which includes a central administrative headquarters, district offices, and such engineering and construction units as are required. The units comprising this service include the general service units organized from components of the Engineer Service Organization (T/O and E 5-500).

**Transportation Service.** The Transportation Service provides the necessary coordination and control of all means of transportation not assigned to the army, the theater air force, the communication zone, or transportation equipment in depot stocks. In the case of railways operated by a civilian organization, this agency controls military traffic. Although normally administered by the theater air force, the theater air transport service functions under the operational control of the Chief of Transportation as an essential means of transportation for the theater as a whole.

The Transportation Service Organization includes the administrative office of the Chief of Transportation, district or area control offices, the Military Railway Service, the Motor Transport Service, the Inland Waterways Service, the Coastwise Transportation Service (vessels under United States Army control only), and operational control of the theater air transport service.

**Military Railway Service.** Where railways in a theater of operations are not operated by a civilian railway organization, they are operated by the Military Railway Service under the Theater Chief of Transportation. The Engineer Construction Service includes the Headquarters, Military Railway Service, one or more grand division headquarters, the necessary number of operating and shop battalions or companies, and such additional auxiliary services as are needed. For railways requiring only one grand division headquarters, this headquarters functions as a Headquarters, Military Railway Service. The above organization may be augmented by units organized from components of the Transportation Corps Service Organization, T/O and E 55-500; or, in the case of minor railway operations, the entire railway organization may be organized under this table.

**Motor Transport Service.** In situations where it is necessary to supplement railways, inland, and coastwise waterways by motor transport, a Motor Transport Service is organized under the Theater Chief of Transportation. This service includes an administrative headquarters, the required number of Quartermaster motor vehicle and Ordnance maintenance units, and such other auxiliary services as are needed. In extensive operations, a Signal Service, organized under T/O and E 11-500, may be required for the control of operations.

**Other Transportation Services.** The Inland Waterways and Coastwise Transporation Services (vessels under United States Army control only) are organized in a manner similar to the Military Railway and Motor Transport Services, and both function under the Theater Chief of Transportation. The units required by these services are normally organized from components of the Transportation Corps Service Organization, T/O and E 55-500. The Air Transport Service normally functions under the Air Service Command, its operations being controlled by the Theater Chief of Transportation.

## ORGANIZATION OF THE ORDNANCE DEPARTMENT

**Mission and Functions.** The mission of the Ordnance Department is to develop, design, procure, store, maintain, and supply to the Army such equipment and supplies as are assigned to the Ordnance Department for procurement, in such quantities and at such times as are required to meet the Army Supply Program and other directives of higher authority. It also trains and furnishes specialized Ordnance troops to service commands and units of the field forces. In short, it furnishes fire power and mobility to the U. S. Army.

The major types of items procured by the Ordnance Department are tanks, self-propelled mounts, motor combat and transport vehicles, artillery and its ammunition, small arms and their ammunition, bombs, grenades, pyrotechnics, mine equipment, spare parts, rockets and projectors therefor. In addition, it


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will procure other Ordnance materiel, raw materials, ingredients, and facilities, including machine tools and other tools and equipment necessary for production and maintenance.

The above mission is assigned by the Commanding General, ASF, and breaks down to the following major staff functions of the Office of the Chief of Ordnance, quoted from ASF Manual M 301:

(a) Within the limits of policies determined by Army Service Forces Staff Divisions, the Office of the Chief of Ordnance determines policies and procedures for procurement of Ordnance supplies and equipment.

(b) Computes requirements for and periodically reappraises and distributes information with respect to supplies and equipment, indicating both the quantity needed and the timing involved, and also the breakdown of such requirements into quantities of raw materials required.

(c) Acts in coordination with other elements of the War Department, with other Federal agencies, and with industry on problems of production, labor supply, financing, raw materials requirements, conservation of critical and strategic materials and facilities, stock piling and priorities, allocations, and preference ratings with respect to Ordnance supplies and equipment.

(d) Determines Ordnance personnel requirements for use by service commands, and at installations and theaters of operation.

(e) Supervises the activities of service commands with respect to Ordnance matters.

(f) Supervises the maintenance, repair, alteration, and salvage of Ordnance supply and equipment.

(g) Formulates and enforces safety, security, and industrial hygiene policies and procedures in plants and installations specifically assigned for continuing protection responsibility.

(h) Makes periodic inspections of storage activities at Ordnance establishments to insure that War Department policies are carried out.

(i) Prepares curricula for and inspects Ordnance schools and training centers, prepares extension courses, training publications, manuals, and other instructional materials for training and field use.

(j) Investigates occurrences involving loss of life, serious injury, serious damage or malfunctioning in connection with production, storage, or use of Ordnance supplies and equipment.

(k) Studies captured enemy materiel and tabulates characteristics thereof.

(l) Participates in the determination of military characteristics of, and prepares specifications for, Ordnance supplies and equipment.

(m) Participates in the preparation of war plans in respect to activities of the Ordnance Department.

(n) Prepares, maintains, and distributes the Ordnance Catalogue, Tables of Organization and Equipment, Tables of Basic Allowances, and Tables of Allowances charged to the Ordnance Department, and adjusts them as required.

(o) Plans and conducts research and development work and designs, develops, and tests new and improved Ordnance items and new and improved materials for Ordnance use.

(p) Prepares firing tables, bombing tables, trajectory charts, and ballistics data.

(q) Determines the necessity for, and recommends the construction of, new manufacturing plants, and the conversion and expansion of existing plants, new depots, and their facilities.

(r) Continually reviews operations to secure the most effective utilization of manpower.

**Operations.** The Office of Chief of Ordnance performs the following field operative functions:

(a) Operates procurement districts through which Ordnance supplies and equipment are procured and inspected.

(b) Operates Ordnance arsenals, proving grounds, and depots, and supervises the operation of Government-owned, contractor-operated Ordnance manufacturing plants.

(c) Trains personnel for field operation in the storage, issue, and maintenance of Ordnance materiel.

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(d) Furnishes troops trained in Ordnance service to the Army Ground Forces and the Army Air Forces.

(e) Manufactures Ordnance materiel.

(f) Places contracts with private industry for the manufacture and development of Ordnance materiel.

(g) Stores, issues, and maintains Ordnance materiel not under the jurisdiction of service commands, ports of embarkation, defense commands, Army Ground Forces, Army Air Forces, theaters, or bases.

**History.** Ordnance affairs of the Revolutionary Army were handled by a military stores committee in 1775, and by an officer called the "Commissary of Artillery Stores" and a secret committee under the "Board of War and Ordnance" from 1776 to 1812.

The formation of the Ordnance Department in 1812 may be supposed to result from four prior events. In 1785, the Secretary of War was charged with taking into his care all military stores, equipment, and supplies of the United States Army. Second, a "Surveyor of Ordnance" was authorized in 1789. Third, Congress in 1794 provided for the erection and repair of arsenals and magazines, and the establishment of national armories. Fourth, in 1795, a Purveyor of Public Supplies was appointed to conduct the procurement of all military and naval stores necessary for the service of the United States.

The original establishment of the Ordnance Department as a separate corps was effected by a Congressional Act of 14 May 1812, a short time before the declaration of the War of 1812. Required to procure, care for, inspect, and issue Ordnance materiel, it first consisted of the following personnel:

1 Colonel
1 Major
4 Captains
8 Lieutenants

The first Chief of Ordnance was Col. Decius Wadsworth; there have been 16 Chiefs thus far in the history of the Ordnance Department.

Although more officers were authorized in 1813, the Ordnance Department was reorganized by the Act of 8 February 1815. This act is considered to be the organic law, the functions of the Department as then set up being similar to those now performed.

Two armories had originally been established in 1794 at Springfield and Harper's Ferry but, by 1819, the following arsenals had either been purchased, built, or were under construction:

| | |
|---|---|
| Rome, Rome, N. Y. | 1813 |
| Allegheny, Pittsburgh, Pa. | 1814 |
| Watervliet, West Troy, N. Y. | 1814 |
| Bellona, Richmond, Va. | 1816 |
| Frankford, Philadelphia, Pa. | 1816 |
| Pikesville, Pikesville, Md. | 1816 |
| Washington, Washington, D. C. | 1816 |
| Watertown, Watertown, Mass. | 1816 |
| Augusta, Augusta, Ga. | 1817 |
| Baton Rouge, Baton Rouge, La. | 1819 |

An interesting experiment, from 1821 to 1832, saw Ordnance, its property, and supplies valued at $9,500.000.00 (1827), combined with artillery as a post-war economy measure. But the unification was a failure attested by high ranking generals and the War Department, so that the Ordnance was again organized as a separate corps by the Act of 5 April 1832, its personnel to comprise 13 officers and 250 enlisted men. It has not since been amalgamated with another arm or service.

Personnel increases were made in the Department in 1838 and 1847, while in 1861 the Chief was advanced to the grade of Brigadier General at the same time that the personnel increase of that year was authorized.

The number of arsenals had increased to 24 by 1860. The value of arsenals and armories in the United States in 1858, just previous to the War, together with all the military material they contained, was estimated at $21,670,022.19. After the Civil War, the annual inventory for 30 June 1871 showed the money value of prop-

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erty in possession of the Ordnance Department to be $53,832,111.02, which is graphic of the usual expansion of Ordnance during wartime.

Personnel had so increased during the Civil War, that contraction was necessary. In 1866, Ordnance officers were regraded by an Act of Congress. In 1869, personnel reduction was so slow that further promotions and appointments were stopped until a reduction of the Department by casualties should take place.

The Ordnance Department retained its independent status throughout the investigations by the Military Affairs Committee in 1872 to inquire into the possibility of reducing the staff corps and departments of the Army by consolidation. No doubt the memory of the 1821-1832 period helped avert a second consolidation.

In 1901, the "detail" system of officer procurement was established in the Department. No new commissions were given in Ordnance, all its officers during World War I being detailed from another arm or service. (This method continued until the National Defense Act was amended in 1920, when permanent commissions in the Department were again authorized.)

During its history until 1903, Ordnance was controlled by the Secretary of War. But, in this year, when the General Staff was organized, Ordnance as a Department came under control of the Chief of Staff.

During World War I, the Department again expanded in responsibility and personnel; from 97 officers and 1,241 men it grew to 4,527 officers and 25,054 men, with the Chief attaining the rank of Major General in 1917 under provisions of the Emergency Act. Yet the Ordnance Department was temporarily stripped of all but ammunition responsibilities when all other functions were absorbed by a section of the General Staff. Under subsequent readjustment, storage and issue of practically all noncommercial Ordnance material was returned to the Department.

An Act of 4 June 1920, amending the National Defense Act, defined the duties of the General Staff, left Ordnance much as it is today and charged the Assistant Secretary of War with the business and supervision of procurement of all military stores needed in time of war. Its authorized strength was set at three general officers, 350 other commissioned officers and 4,500 enlisted men.

The War Department reorganization of 1942 placed the Ordnance Department under the Commanding General, Services of Supply, which component in 1943 was renamed the Army Service Forces. Thus, control now comes to the Department through the Army Service Forces.

During the present World War, the sixth major war in which it has had a part. Ordnance has continued its tradition of production pioneering, not only by its amazing speed in arming the American army but by its new developments as well. It has led the world in the use and design of self-propelled artillery. It has constantly developed new uses for old weapons while inventing new ones; the "bazooka" is but one of the Ordnance inventions of World War II.

**Present Organization.** The headquarters of the Ordnance Department is the Office of the Chief of Ordnance in the Pentagon Building, Washington, D. C. This office is abbreviated "OCO". The Ordnance Department is composed of two main groups: the OCO, or the General Office and Services, and the Ordnance Department field installations. (See Fig. 16)

Each component will be discussed in more detail in this section. The organizational outline is:

1. Office of the Chief of Ordnance (OCO), consisting of:
   a. Special Advisory Staff;
   b. General Office, containing ten staff Divisions;
   c. Military Plans and Training Service;
   d. Research and Development Service;
   e. Industrial Service;
   f. Field Service;
   g. Office, Chief of Ordnance-Detroit.

2. Ordnance Department field installations assigned to the several (above) Services.

*Special Advisory Staff.* This staff consists of leaders in industry, finance, and other spheres of activity as selected by the Chief of Ordnance. It assists him in formulating policies and procedures for the efficient accomplishment of the Ordnance mission.

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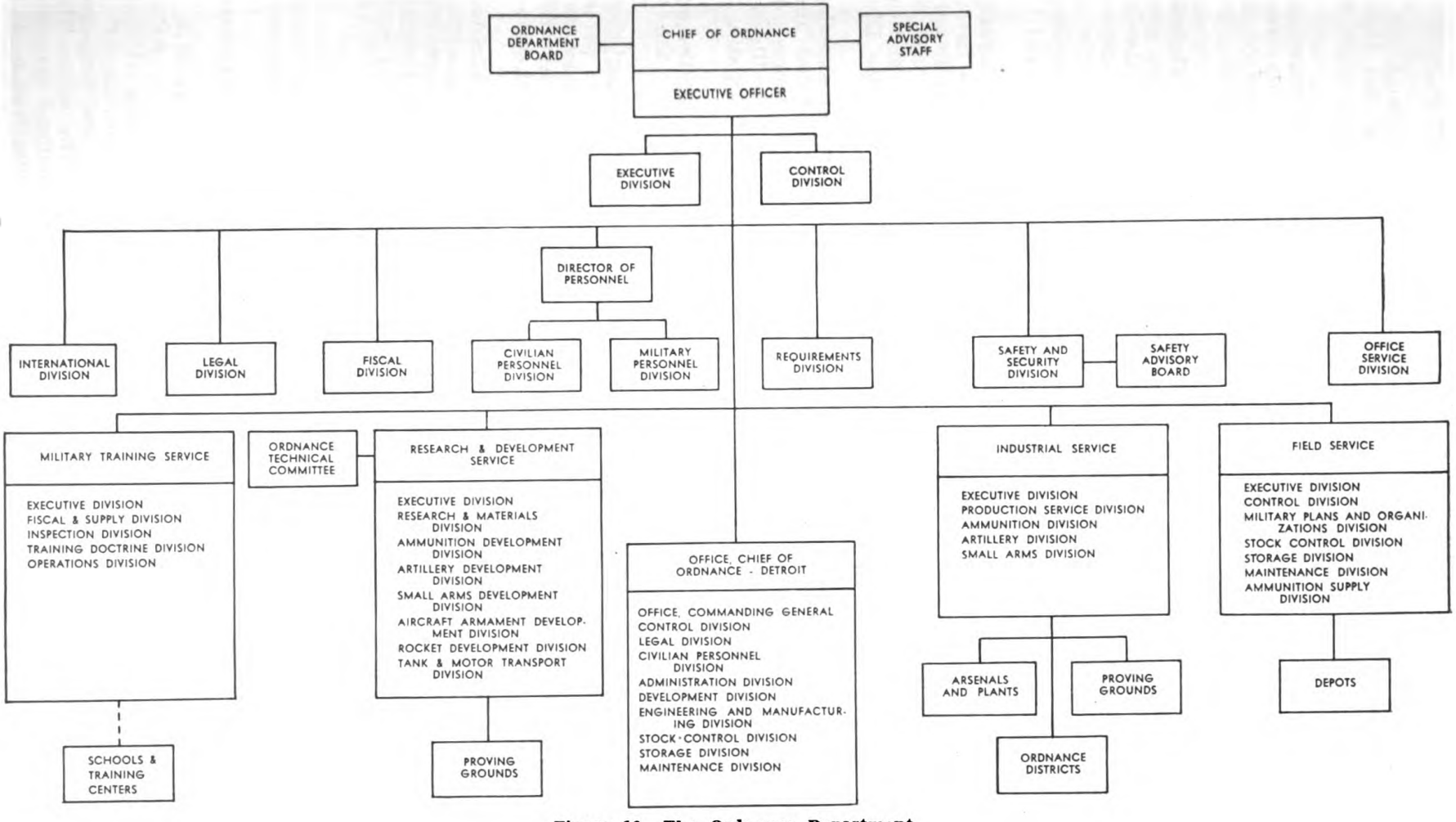



**Figure 16. The Ordnance Department.**

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## GENERAL OFFICE

This component, under direction of the Executive Officer, contains the Staff Divisions (as follows) to become the actual command post of the Ordnance Department in Washington. It performs executive and administrative duties which are common to all activities. (See Fig. 16.)

1. *Executive Division* coordinates activities of the Office, performs miscellaneous executive duties and nontechnical liaison with other agencies of the War Department and the Federal Government, and supervises preparations of official literature and news material. It handles public relations and special planning liaison.

2. *Control Division* advises, surveys, consults, and recommends Department policy, organization methods, procedures, and statistical reporting. It prepares or coordinates the latter and makes interpretations of the same. It also makes special reports as required and works with the Control Division, Headquarters, ASF.

3. *International Division* coordinates activities of the Ordnance Department covering international aid matters, including correspondence, liaison, and Lend-Lease requirements.

4. *Legal Division,* acting as general counsel for the Ordnance Department, furnishes legal aid and advice for the entire Department as well as its manufacturing and field installations. It studies and advises on all procurement and purchase policy, and all tax, renegotiation, claim, and related matters.

5. *Fiscal Division* handles funds, budgets, and expenditure programs, and supervises contractors' financial aid and cost accounting. (See Office Service Division for equipment budgeting).

6. *Requirements Division* determines the requirements of Ordnance supplies for the Army Supply Program, bases, theaters, task forces, and scheduled aircraft production. It also performs liaison with interested government agencies.

7. *Safety and Security Division* supervises safety, security, and intelligence at assigned establishments, making necessary inspections and investigating any irregularities. It is assisted by the Safety Advisory Board.

8. *Office Service Division* furnishes sundry services for the Office, handles equipment budgeting matters, maintains permanent files on contracts made by the Office, operates the OCO message center, etc.

*Office of the Director of Personnel* supervises the operation of the remaining two divisions of the General Office. It performs executive duties, prepares personnel requirements, and supervises personnel statistical reporting. It likewise studies utilization of manpower, maintains liaison, and advises on Selective Service and deferment problems. The office is headed by the Director of Personnel, who controls the Military and Civilian Personnel Divisions.

9. *Military Personnel Division,* under the Director of Personnel, administers or coordinates all matters connected with procurements, assignment, classification, discipline, promotion and separation of military personnel of the Department.

10. *Civilian Personnel Division,* under the Director of Personnel, handles all matters of policy, counsel, and assistance concerning civilian personnel and administers the civilian personnel programs of the Department.

### War Department Communications

**Correspondence Coding.** War Department communications carry a five-letter symbol which is a key to the office sending or originating the correspondence; for example: **SPOGS.**

The first two letters of the symbol identify the general source of the material, according to the following code:

| | |
|---|---|
| War Department General Staff | WD |
| Army Air Forces | AF |
| Army Ground Forces | GN |
| Army Service Forces | **SP** |

The last three letters of the symbol identify the subdivision of the sending agency: these codes are assigned by the above four major agencies. The letter **"O"** in the third position designates an Ordnance Department installation. The fourth letter in the symbol designates the staff branch, service or other major division within the Ordnance Department, using the following code:

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General Office ..... G
Military Plans and Training Service ..... H
Research and Development Service ..... T
Industrial Service ..... I
Field Service ..... F
Office of the Chief of Ordnance—Detroit ..... M

The fifth letter of the symbol shows the agency within the above which originates the communication. The letter "X" frequently indicates the executive branch or office of the commander. Other letters are used as directed.

Thus, in the example above (**SPOGS**), "SP" shows the originating agency is part of the *ASF*. The "O" indicates that it belongs to the *Ordnance Department*. "G" shows it is an agency of the *General Office*. By reference to official listings, we find **"S"** indicates the *Curtis Bay Sub-Office, Administration Branch* of the General Office.

Responsibility for assignment of these communication codes rests with the Administration Branch, General Office, OCO (SPOGA). Information on Ordnance codes may be obtained from this office, Ordnance Department Orders and appropriate ASF Manuals.

## MILITARY PLANS AND TRAINING SERVICE

This Service is responsible for the training of Ordnance military personnel and planning for the betterment of Ordnance service to the Army. It establishes policies, plans, and programs for training; promulgates training doctrine for ASF Ordnance troop units; prepares or reviews T/O & E's; and recommends movements and assignment of Ordnance troops. It is charged with securing advance information on troop activations and movements for logistical planning. The Service also reviews and disseminates Ordnance information from Ordnance and overseas sources, except that dealing with research and development. For the entire Ordnance Department, it coordinates and supervises assigned activities. Finally, the Service is charged with preparing recommendations for improvement of Ordnance service rendered the Army. It has assigned installations, of which the Ordnance School is an example. The Service, at present, is commanded by a Chief of Service with the rank of brigadier general; its organization is shown in Fig. 17.

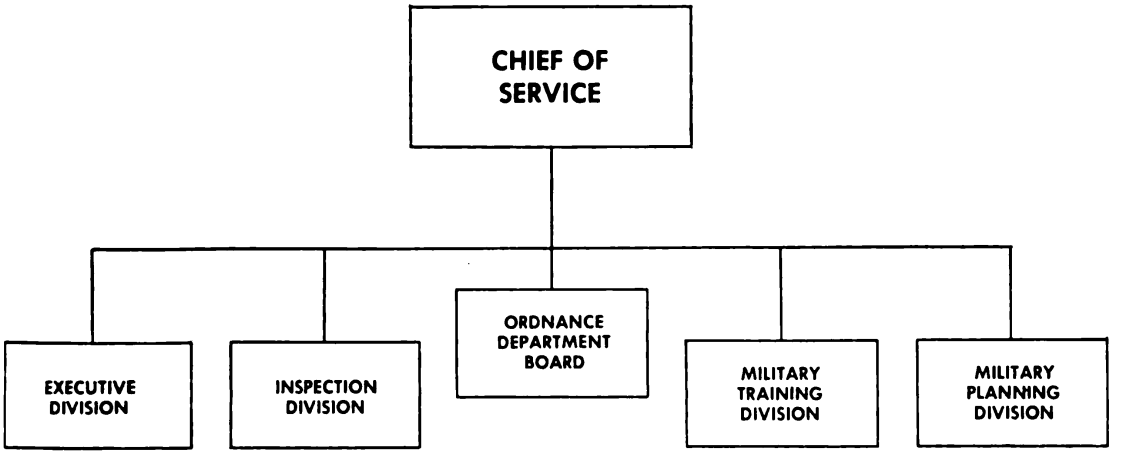



**Figure 17. Military Plans and Training Service.**

**The Ordnance Department Board,** Aberdeen Proving Ground, Md., jointly with the four divisions of the Military Plans and Training Service, is charged with execution of the above functions. The Board, operating under the provisions of AR 45-10, makes recommendations for the improvement of Ordnance service. For example, it studies such Ordnance problems as field service doctrine, service operating procedures, training objectives, Ordnance T/O & E's, "N" series SNL's, Ordnance Field Manuals, and Ordnance sections of War Department Field Manuals. In carrying out its duties, the Ordnance Department Board tests doctrine by field observations.

In order to facilitate action between the Board and Military Plans and Training

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Service, the liaison and coordination officer of the former is the executive of the latter. He not only coordinates with interested services in OCO, but with the three major commands (AAF, AGF, ASF) as well.

The Military Plans and Training Service in Washington has the following four divisions:

**1. Executive Division** performs administrative and coordination duties assigned by the Chief of Service, with emphasis on personnel matters within the Service. Coordination with the Control Division of the General Office, recommendations on the organization of the Service, supervision of training funds and compliance with War Department policies on training facilities are examples of the duties of this Division It also compiles training equipment requirements and represents the Service in business involving the Controlled Materials Plan, priorities, equipment, rationing, and the Army Supply Program. It handles central procurement of training tools and equipment, compiles information on civilian institutional training contracts for ASF, arranges for training establishment supply, and prepares new Tables of Allowances for certain Ordnance facilities, centers, and schools. Finally, it arranges for the supply of foreign materiel to be used in Ordnance training.

**2. Inspection Division** inspects and reports on all schools, units, and training centers under supervision of the Chief of Ordnance. It also inspects technical training of Ordnance ASF troops at service command and AGF installations. It may frequently make other visits as directed by higher authority, and in all cases, recommends corrective action to be taken as a result of its inspections.

**3. Military Training Division** directs, supervises, and coordinates all military training in Ordnance centers, schools, and installations under the Chief of Ordnance. In discharging its duties, the Division handles activations and deactivations of Ordnance schools, courses, and training centers; preparation and revisions of individual courses; compliance with ASF training directives and programs; and review of Ordnance school and training center programs of instruction. Further, it allots student quotas, initiates curricula, sets training capacities and requirements, recommends troop movements and assignments, and requests action on factory school instruction. It supervises special planning for the Division and maintains liaison with the Special Planning Branch of the Executive Division, General Office. One of the Division's jobs of importance to the field is the preparation, review, and approval of Ordnance training aids and literature. This includes Ordnance Field Manuals, training films, film strips, training charts, posters, models, Ordnance School texts, and other Ordnance training installation publications. Finally, the Military Training Division must maintain contact with the development and manufacture of Ordnance materiel and all current reports and information to insure that training programs are kept abreast of both.

**4. Military Plans Division** prepares plans for activation and movement of troop units within and without theaters of operation. In performing this job, the Division deals with staff divisions of the War Department General Staff and the three major commands. It is also in contact with theater, department, and command Ordnance officers to exchange and disseminate information on Ordnance materiel, personnel, and procedures. It is responsible for recommending doctrine for Ordnance troop units and creation of new type units. In more detail, the Military Plans Division must determine the requirements for ASF Ordnance troops to be included in the Troop Basis, prepare or review Ordnance Equipment Charts and Ordnance T/O & E's, and review Ordnance sections of tables for AAF and AGF units. Further, the Division coordinates the preparation of the "N" group SNL's, especially with the Ordnance Department Board.

The above four divisions are further divided into branches, sections, subsections, and units as required.

Schools, training centers, and training activities at Class IV installations are the field establishments of the Military Plans and Training Service. The Service establishes training doctrine and student quotas, and prepares training programs at like activities which are Class I installations.

As of February, 1945, the following Ordnance training establishments were in operation:

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| | |
|---|---|
| The Ordnance School | Aberdeen Proving Ground, Md. |
| A.S.F.T.C. (Ord) | Aberdeen Proving Ground, Md. |
| A.S.F.T.C. (Ord) | Flora, Miss. |
| O.U.T.C. | Texarkana, Texas |
| Bomb Disposal Center | Aberdeen Proving Ground, Md. |
| Ordnance Automotive School | Ft. Crook, Nebr. |
| Ordnance Automotive School | Atlanta, Ga. |
| Ordnance Automotive School | Tacoma, Wash. |
| Ammunition Renovation School | Pedricktown, N. J. |
| Ordnance School | Proving Ground, Illinois |

## RESEARCH AND DEVELOPMENT SERVICE

This Service plans and executes progressive plans of research, experimental development of new and improved Ordnance materiel, and new, improved and substitute materials for Ordnance use. It controls and directs research and experimental development, administers its interests at Aberdeen Proving Ground, supervises and coordinates conservation of critical materials, and approves specifications for the Chief of Ordnance. Generally, it carries experimental development through to standardization or release for procurement, retaining concurrent authority over subsequent changes in the characteristics of Ordnance materiel. The Service likewise obtains and analyzes technical Ordnance information from foreign and domestic sources. It releases technical information to foreign governments and maintains liaison within agencies of the War and Navy Department as well as outside research activities. (See Fig. 18)

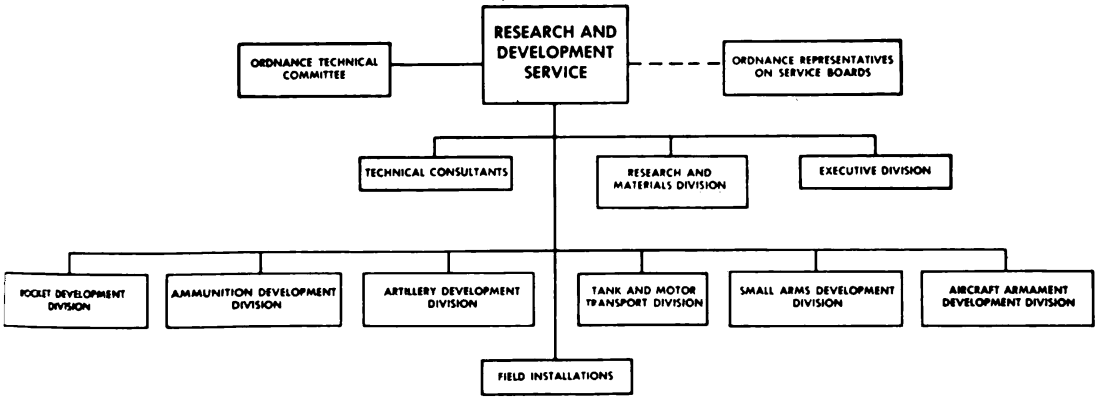



**Figure 18. Research and Development Service.**

The Service is aided by the Ordnance Technical Committee, which is composed of representatives not only from the Ordnance Department but various arms and services of the Army, Navy, and Marine Corps as well. The Chief of Service is the chairman of this committee, which acts in an advisory capacity to the Chief of Ordnance. The committee considers and recommends final action on all technical matters affecting Ordnance materiel for the armed forces. It is aided by the Secretariat, which renders general office assistance to the committee.

Ordnance representatives on service boards also aid the Service. These representatives assist in formulating military characteristics for and testing new Ordnance materiel. There are seven members, one on each of seven service boards.

**Administrative Division.** Three main divisions administer the Service.

The *Technical Consultants*, first, advise the Chief of the Service on matters relating to research and development, recommending designs, projects, and improved materials. The consultants industrialize Ordnance designs. At present, there are a total of over 25 consultants, some serving without compensation.

Second, the *Research and Materials Division* analyzes and evaluates the work of all the development branches. This Division supervises, coordinates, and records research and development programs of Ordnance laboratories, investigates inventions recommended by the Inventors' Council, conducts research on conservation of strategic materials, and obtains and distributes technical and Ordnance informa-

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tion from foreign and domestic sources. The division likewise supervises the preparation of firing tables and collaborates with the National Defense Research Council and other technical agencies in matters affecting Ordnance research.

The *Executive Branch,* third, performs administrative duties assigned by the Chief of the Service, coordinating the work of the divisions, branches and assigned proving grounds, as well as maintaining liaison in Washington. It administers personnel and miscellaneous administrative matters, handling funds, records of characteristics of materiel, and plans for improvements of the operation of materiel.

**Development Branches and Field Installations.** The remainder of the Service is divided into two main portions: the development branches and the field installations. The six development branches, each concerned primarily with development of its equipment to standardization and release for procurement, are:

Rocket Development Branch,
Ammunition Development Branch,
Artillery Development Branch,
Tank and Motor Transport Branch,
Small Arms Development Branch, and
Aircraft Armament Development Branch.

The field installations of the Service include Aberdeen Proving Ground and Ordnance research and development agencies. These installations carry on field work of the Service in the development of Ordnance for the United States Army.

**Operations.** Some idea of the scope of operations of this Service can be obtained from the following chart, showing the funds authorized the Ordnance Department for development, the number of projects being handled, and the number of projects that reached standardization during recent years:

| Year | Funds | Projects | Standardization |
|---|---|---|---|
| 1920 ..... | $1,120,500 | 100 | 5 |
| 1930 ..... | $2,730,500 | 167 | 13 |
| 1940 ..... | $2,000,000 | 295 | 79 |
| 1941 ..... | $24,000,000 | 980 | 167 |
| 1942 ..... | $37,000,000 | 1516 | 224 |

Since World War I, Ordnance has accomplished an increase of 50% in the muzzle velocity of medium antiaircraft and antitank artillery. Antiaircraft artillery ranges have been doubled. Tank speeds are up 700%. The firepower of the individual soldier is 250% of what it was during World War I, and Ordnance bombs are 300% larger than in 1918.

## INDUSTRIAL SERVICE

This Service procures, produces, inspects, and accepts all Ordnance materiel and spare parts, performing all related engineer work. Its business of securing American war materials increased 71,300% in 41 months since May 1940. It must closely cooperate with industry in carrying out the Army Ordnance Plan. Among the responsibilities of the Service are the conversion and expansion of existing plans needed for procurement and the performance of all duties incident to procurement not otherwise specifically assigned to other Services. The Service is organized into Executive, Production Service, Ammunition, Artillery, and Small Arms Divisions. Its field installations include the manufacturing arsenals and 13 Ordnance district offices. (See Fig. 19)

**The Executive Division** of the Service performs duties assigned by the Chief of the Service; for example, coordinating the administration of arsenals, supervising financial matters, and administrating work on Defense Plant Corporation projects and tax amortization phases of contracts. Supervision of military and civilian personnel, coordination with Industry Integration committees, and review of organization and procedure are also duties of this Division.

**The Production Service Branches** are now divisions and have duties for the Ordnance Department as well as the Industrial Service. For the Department, the Production Service Division.

(1) Allocates controlled materials, machine tools, equipment, and scarce standard products.

(2) Supervises and coordinates activities of the rubber program and priorities.

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(3) Coordinates redistribution and disposition of serviceable and unserviceable property.
(4) Coordinates and controls fuels and utilities' supplies of Ordnance establishments and facilities.
(5) Exercises technical direction of Ordnance packaging activities.
(6) Coordinates Ordnance nomenclature, drawing system, interchangeability of items and parts, and the use of standard parts.
(7) Considers and recommends to the Army Board for Production Awards the plants to receive the Army and Navy "E" award.

Similarly, for the Industrial Service, the Production Service Division.
(1) Plans, schedules, and coordinates activities common to more than one division, including production, inspection, and production reports.
(2) Supervises procurement of War Aid machine tools.
(3) Designs, procures, and inspects inspection gages and provides for expansion of gage facilities.
(4) Supplies proof materials and equipment.
(5) Processes project requests for construction and expansion or reduction of industrial facilities for manufacturers of Ordnance materiel.
(6) Recommends action on suggestions relative to conversion, redesign, and related matters.

The remainder of the Service is composed of the Ammunition, Artillery, and Small Arms Divisions.

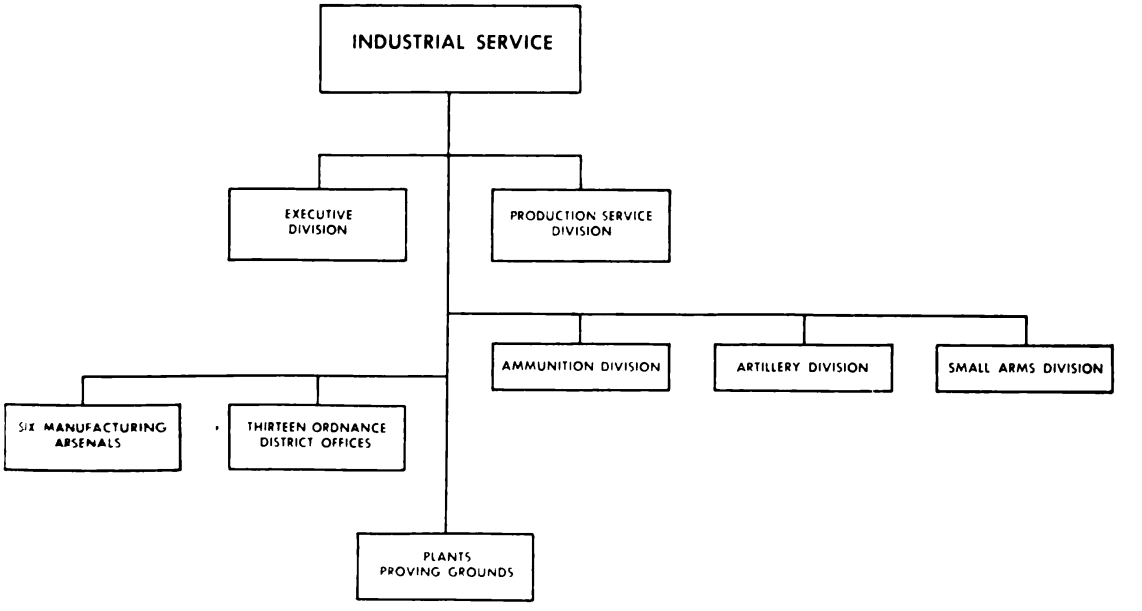



**Figure 19. Industrial Service.**

**The Ammunition Division** handles ammunition larger than cal. .60, bombs, grenades, pyrotechnics, and components. Its specific duties, (which are the same for the Artillery and Small Arms Division to follow), in general, are to:
(1) Prepare estimates of funds needed.
(2) Cooperate with the Research and Development Service in the development of materiel.
(3) Furnish production engineering services.
(4) Initiate and supervise preparation of descriptions of manufacture.
(5) Plan and supervise procurement, inspection, and acceptance of assigned material.
(6) Supervise and report on progress of production.
(7) Determine costs and established prices.
(8) Administer assigned proving grounds and government-owned facilities producing assigned material.
(9) Review instructional material for technical accuracy.

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**The Artillery Division** and Small Arms Division have essentially the same duties. The Artillery Division handles cannon larger than cal. .60, carriages, parts, caissons and limbers, recoil mechanisms, fire control and optical instruments, submarine mines, and related equipment. The **Small Arms Division** handles ammunition of cal. .60 and under, rifles, machine guns and mounts (exclusive of combat vehicles), hand arms, pistols, revolvers, pyrotechnic projectors (shoulder type), rocket launchers, accessories, and hand carts.

The field installations of these branches are as follows:

*Ammunition Division.* Two proving grounds and 56 government-owned, agent-operated plants.

*Artillery Division.* One proving ground (establishment of the Industrial Service), one government-owned contractor-operated plant, and one government-owned government-operated plant.

*Small Arms Division.* Eleven government-owned contractor-operated plants.

These are not to be confused with the field installations of the Service as a whole, which include manufacturing arsenals and district offices. (See section on 'Field Establishments' on page 49)

The estimated sums of money shown in Fig. 27 (p. 59), used mainly by this Service in 1943, would build the properties shown.

**Development of New Ordnance Materiel.** Each of our 233,000 different items of Ordnance materiel began as an intangible idea in the mind of one or two men. Since the Research and Development Service handles much of the detail of initial development, a discussion of Ordnance materiel from idea to complete product is logical under this Service.

New ideas for weapons, tools, and equipment may come to the Research and Development Service from any of the following:

1. Director of Materiel, ASF.
2. Normal channels of command, AAF.
3. Ordnance Office, AGF.
4. Technical channels of communication.
5. National Inventors Council or Office of Scientific Research and Development.
6. Manufacturing arsenals or other agencies of the Ordnance Department.
7. Publications, such as "Army Ordnance," "Army Motors" and "The Ordnance Sergeant."

The process by which the new idea is studied, approved, and tested is outlined in the illustration at the back of this volume. This illustration shows development to either limited or full standardization, distribution to troops (either automatically or by requisition), and the method of modification of materiel. While the chart shows the full process of development, it should be remembered that frequently a new idea or item will by-pass up to 50% of the steps listed. How this may be accomplished will be understood from a close study of the figure.

In brief, however, the process of development of an item destined for ultimate standardization consists of seven normally essential steps. They are as follows:

1. The idea is checked by the Research and Development Service with the using arm or service, written up, and forwarded to the Ordnance Technical Committee.
2. The Ordnance Technical Committee secures the approval of ASE to continue the project.
3. The approved project is returned through the Technical Committee and Research and Development Service to a Service field agency which builds and tests a pilot model of the equipment.
4. The Ordnance agency forwards the successful equipment to the using arm or service for service tests and reports.
5. Results of progress and tests are forwarded through the Ordnance Technical Committee to ASF for final approval.
6. The project is returned through the above channels to the Industrial Service for manufacture with actual contracting and supervision of production handled by the Ordnance procurement districts.
7. The completed materiel is distributed by the Field Service of the Ordnance Department.

It should be noted that this describes materiel finally accepted for production. Many ideas and projects are weeded out en route by all agencies concerned. A

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better understanding of steps 6 and 7 will result from a study of the section on 'Field Establishments' of the Ordnance Department (p. 49)

## OFFICE CHIEF OF ORDNANCE—DETROIT

The Office Chief of Ordnance-Detroit (sometimes called OCO-D), on behalf of the Research and Development, Industrial, and Field Services, performs the following with respect to Ordnance automotive materiel assigned:

1. Controls experimental development, manufacturing, and packaging projects.
2. Promotes conservation and simplification.
3. Determines nomenclature.
4. Coordinates requirements.
5. Initiates and follows up procurements, shipments, modifications, reprocessing, remanufacturing, preventive maintenance, reclamation, and disposal of surplus materiel.
6. Recommends storage facilities and practices.
7. Controls distribution, stock levels, and issues.
8. Directs depot, base shop, and traveling repair crew operations.
9. Issues military publications.

The present commander of OCO-D is a brigadier general, assisted by a deputy commander, chief engineer, and administrative officer.

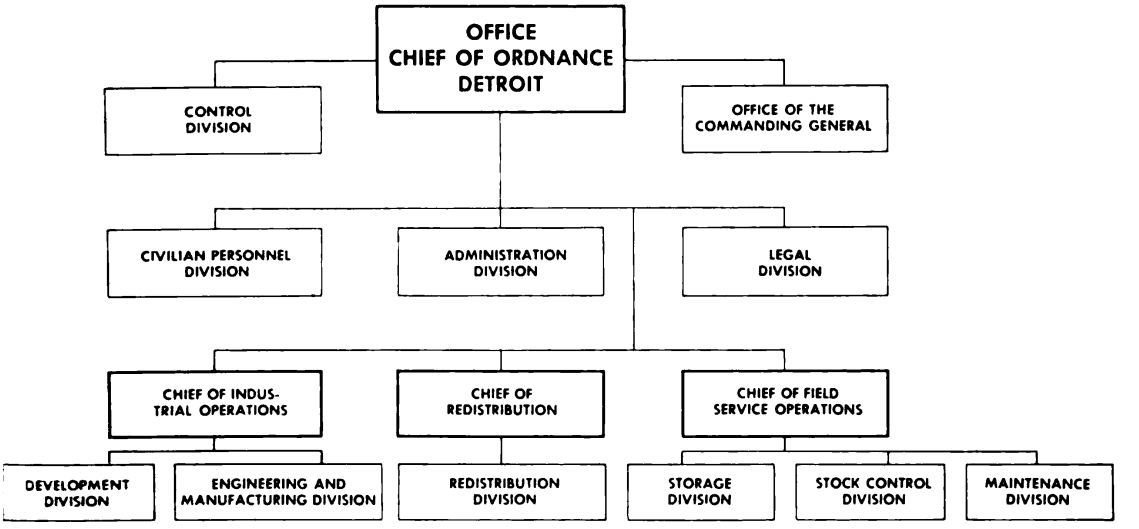



**Figure 20. Office of the Chief of Ordnance—Detroit.**

OCO-D is organized into four administrative divisions and three operating groups. (See Fig. 20) These include the following:

Administrative Divisions:

1. Control Division;
2. Administrative Division;
3. Civilian Personnel Division;
4. Legal Division.

Groups:

1. Chief of Industrial Operations;
2. Chief of Redistribution Division;
3. Chief of Field Service Operations.

**Administrative Groups.** The *Control Division* is a consulting agency which conducts surveys, makes recommendations, controls organization, studies special problems, reviews the effectiveness of operations, prepares required reports, and handles assigned executive functions. It contains four branches: Administrative Management, Executive, Machine Service, and Statistics and Progress. In general, it is the coordinating executive office of the commander.

The *Administrative Division* handles all communications, civilian personnel payrolls, and accounting records on general overhead and minor experimental expenses. It facilitates official travel for personnel and transportation for tank-auto-

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motive materiel. It is likewise charged with furnishing or arranging for office space, supply, operating materiel, reception, telephone service, reproduction, building maintenance, and miscellaneous services including library, garage, and morale-building activities.

The *Civilian Personnel Division* interviews, investigates, selects, inducts, classifies, and assigns personnel. It processes requisitions for personnel, collaborates on recruitment and transfers, prepares job descriptions, controls identification badges, publishes a correspondence manual, conducts training programs, and compiles efficiency ratings. Civilian Personnel also handles Selective Service occupational deferments, housing, first aid, and welfare.

The *Legal Division* advises, consults, and collaborates with the office of the Chief of Ordnance, OCO-D, Ordnance district offices, and Headquarters, ASF, on legal matters concerning materiel assigned to OCO-D. The Division places particular emphasis on matters pertaining to contracts and patents. It has a Patent Branch.

The remaining six divisions of the Office of the Chief of Ordnance-Detroit are grouped under the deputy commander, chief engineer, and administrative officer.

**Chief of Industrial Operations.** This office supervises the operations of the Development Division and the Engineering and Manufacturing Division.

The *Development Division* handles experimental development work of the OCO-D. It initiates and controls projects in development by preparing drawings and models, and assisting in the formulation of military characteristics of materiel. It also directs or facilitates the work of contractors in the design, procurement, and testing of pilot models for manufacture. Finally, the Development Division recommends standardization or cancellation of projects, promotes simplification of work, handles rubber conservation, and collaborates on manufacturing development problems.

The *Engineering and Manufacturing Division* directs manufacturing development projects on vehicles and components. It issues drawings, specifications, and technical documents, determines nomenclature, and assigns and lists parts numbers. Likewise, this Division promotes conservation measures, standardization, and interchangability of automotive parts. It processes and facilitates allotments, procurement, production, assembling, remanufacturing, production modifications, preparation for shipment, and disposition of certain production material. Preparation and follow-up of inspection instructions, preparation of schedules, manuals and reports, and the handling of Army-Navy "E" awards are other duties of the Division.

**Redistribution Division.** The Redistribution Division coordinates redistribution and salvage activities of all OCO-D material which is reported as 'excess'. Coordination, in accordance with Ordnance Procurement Instructions, is required within the Detroit office, and with the Ordnance district offices, appropriate Ordnance contractors, Field Service establishments, other arms and services, and higher authority. It is divided into an Office Service Branch; Office of Chief of Division; Military Property Branch; and Non-military Property Branch.

The *Office Service Branch* handles personnel, timekeeping, travel, payroll, and training matters. It executes internal office procedures, checks correspondence and manuals, furnishes publications and office supplies, and supplies messenger, clerical, and miscellaneous office services.

The *Military Property Branch* is the largest of the four and processes the redistribution of military property from the time it is reported as excess until it is accepted as surplus property by the U. S. Treasury Department. It is composed of a Technical Section, Statistics and Records Section, and Clearance Section. The Branch receives reports of excess material, circularizes the material, and follows through until redistribution or disposition is completed.

The *Non-military Property Branch* handles material reported as 'excess' from Ordnance District offices. Its principle duty is assistance and coordination of redistribution and salvage activities of the several interested elements of the OCO-D with Ordnance District Offices, appropriate Ordnance contractors, and other arms and services.

**Chief of Field Service Operations.** The Chief of Field Service Operations has three Divisions under his control: Storage Division, Stock Control Division, and Maintenance Division.

The *Storage Division* is concerned with all phases of storage. It assists in de-

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signing, altering, laying out, and equipping storage areas and warehouses; recommends improvements in warehousing systems; locates space; predetermines stock locations; and establishes and directs installation of equipment requirements. It also makes estimates of handling capacities, correlates these with anticipated loads, and forecasts inbound shipments. The Storage Division studies the effectiveness of existing facilities and new techniques. It compiles related data and publications, and advises on operating problems of government-owned railroads in Field Service establishments.

The *Stock Control Division* recommends and coordinates over-all distribution plans and stock control practices. It coordinates and expedites allocations, distribution, and shipments to and from Ordnance depots. Stock Control also maintains stocks at pre-determined levels and locations, processing replenishment directives, supply requests, and movement orders. Other duties of this Division include: determination of initial deficiencies and replenishment requirements; coordination of procurement of vehicles with concurrent spare parts; recommendation of cut-backs; promotion of parts interchangeability and simplification; reporting of surpluses for disposition; preparation of stock; and facilitation of the supply of War Aid Material.

The *Maintenance Division* evaluates technical parts usage and malfunctioning data, promotes ease of maintenance, and collaborates in developing and supplying tools. It also determines first-year parts requirements, describes and identifies parts and tools, and publishes "Army Motors Magazine", operational manuals, parts lists, and other military publications. The Maintenance Division directs base shop operations and certain shipments to POE. It controls traveling repair crews. It initiates and facilitates modification, reprocessing, remanufacturing, preventative maintenance, and reclamation programs. It necessarily prepares, reports, and furnishes technical information on all maintenance matters.

## FIELD SERVICE

The Field Service stores, issues, inspects, repairs, modifies, and maintains Ordnance materiel and ammunition in assigned Ordnance installations. It does not, however, handle such major renovations of ammunition as are made by the Industrial Service. Field Service also determines the requirements for Field Service publications, arranges for the printing of all Ordnance military publications, and reviews pertinent publications relating to other services or forces. It recommends assignment and movement of certain Ordnance cadres and units, and secures Ordnance information from overseas theaters for dissemination. The organization of Field Service is shown in Figure 21.

The Chief of Service is assisted by an executive officer, several commissioned assistants, and the necessary clerical personnel.

The Supervisor for Field Activities, at present a brigadier general, is charged with inspection and coordination of the technical aspects of all field activities.

The Chief of Planning secures plans from operating branches for carrying out their particular missions; reviews them in the light of strategic needs and probable volume; and insures that they fit into the over-all mission of the Service, preparing plans for final approval of the Chief of Service. The Chief, at present a brigadier general, is also the Chief of the Maintenance Branch. He is provided with two commissioned assistants and the necessary clerical help.

The Executive Assistant for Materiel Control, by delegation from the Chief of Ordnance, coordinates, throughout the Ordnance Department, the calculation of requirements; the scheduling of production; the establishment and revision of stock levels for distribution and reserves; and the disposal of surplus for all major items, spare parts, and other materiels of Ordnance supply. He also maintains liaison for the Department with appropriate staff divisions of the ASF; reviews supply and demand studies covering Ordnance materiel; follows up action taken resulting therefrom; supervises reporting procedures related to supply and demand studies, reserves, and surplus; and prepares or reviews reports relative to the status thereof, required by higher authority.

**Divisions.** The Service itself is organized into divisions as follows: Control Division, Executive Division, Military Plans and Organizations Division, Ammunition Supply Division, Maintenance Division, Stock Control Division, and Storage

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Division. The field installations of this Service include suboffices at Rock Island Arsenal, Frankford Arsenal, and the Office, Chief of Ordnance-Detroit and depots in the field.

The *Control Division* reviews surveys, and recommends appropriate action on matters of policy, organization, method, and procedure. It acts in an advisory capacity to all Service components, coordinating and exercising staff supervision over statistical reporting activities and administering requests or reports from outside sources. The Control Division furnishes periodic progress reports on Service activities to the Chief of Service. It also exercises staff supervision over control activities at suboffices functioning under staff supervision and direction of the Chief of Service.

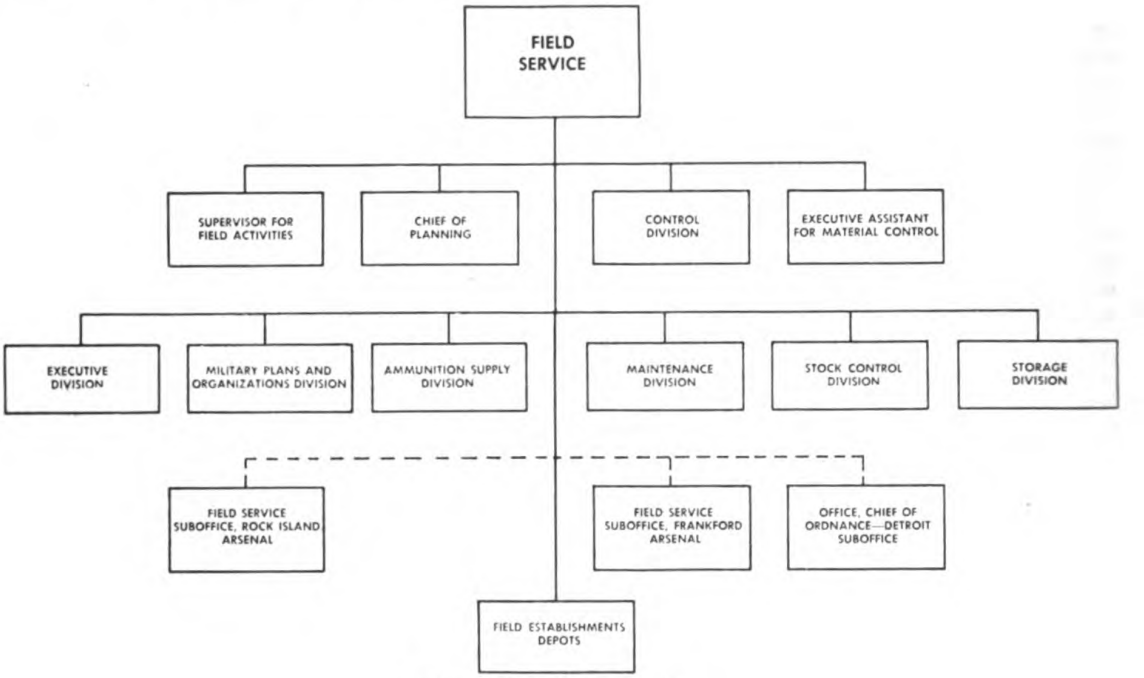



**Figure 21. Field Service.**

The *Executive Division* relieves the Chief of Service of many responsibilities and administrative matters. It:

Administers military and civilian personnel matters;
Performs fiscal functions;
Coordinates action on inspection reports;
Publishes activity reports and orders;
Maintains the Service history;
Operates the mail distribution center;
Provides liaison with the Ordnance Department Board;
Administers contracts assigned for services to be rendered overseas;
Assures preparation of, edits, and arranges printing of all Ordnance military publications except Field Manuals and Tables of Organization and Equipment.

The *Military Plans and Organization Division* is responsible for the functions its name implies. It handles training problems for the Service, devises specialized programs and recommends on unit organization. It is also responsible for Service Training liaison within OCO.

The *Ammunition Supply Division* accomplishes all ammunition stock control and storage functions under the staff supervision of the Stock Control and Storage Divisions. It develops and prescribes procedures for surveillance and renovation of ammunition; it also provides technical and consulting assistance in installing and making these effective in ammunition depots. Further, it supervises packaging, crating, and marking of ammunition in Field Service stocks.

The *Maintenance Division* exercises staff supervision and direction over all maintenance and preventive maintenance functions. This includes the establishment

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of policies and the preparation of plans and procedures for the over-all repair, reclamation, modification, and inspection of all Ordnance materiel at arsenals, depots, and base shops under the control of the Chief of Ordnance. The Division exercises similar technical supervision over Ordnance materiel at installations not under the control of Ordnance. It coordinates all tool and equipment activities and directs activities pertaining to fuels, lubricants, and cleaning and preserving compounds for the Ordnance Department.

The *Stock Control Division* exercises staff supervision and direction of stock control functions of Field Service and its installations (including those decentralized to the Office, Chief of Ordnance-Detroit), Field Service suboffices, and other installations not assigned to the Service.

The *Storage Division* exercises supervision and direction of all storage and warehouse functions of the Service (including those decentralized) and of the administrative activities of all Service depots. It insures execution of procedures issued by the Field Service Division and by other echelons; coordinates over-all space requirements, work-load assignments, training programs, and additional Field Service establishments; and arranges for procurement and supply of operating equipment to all Field Service depots.

**Suboffices.** The suboffices of the Service execute the Field Service responsibilities for supply, maintenance and (through the Office, Chief of Ordnance-Detroit) storage of certain materiel. The Frankford Arsenal stores fire control and antiaircraft artillery materiel. The Rock Island Arsenal stores mobile artillery and antiaircraft artillery materiel.

The Office, Chief of Ordnance-Detroit executes the Service's responsibilities for supply and maintenance of tanks; self-propelled gun-mounts; combat, transport, and other vehicles assigned to the Ordnance Department; and storage of all Ordnance general supplies. (See Section on Office, Chief of Ordnance-Detroit)

## FIELD ESTABLISHMENTS

Field installations of the Ordnance Department include:

1. Specialized centers and suboffices;
2. Manufacturing arsenals;
3. Procurement districts;
4. Proving grounds;
5. Government-owned manufacturing plants;
6. Depots.

Many of these installations will be operated primarily by one of the Services within the Office of the Chief of Ordnance, but no attempt will be made to set down exact proprietorship, as frequently there is an overlap between Field Service, Industrial Service, and Research and Development Service. It is better to consider installations as agencies of the Ordnance Department as a whole, for the essence of the Ordnance program is close cooperation between Services within the Department as well as with industry.

**Specialized Centers and Suboffices.** Many of these specialized centers were first planned or created in 1923 by the Ordnance Department's Industrial Mobilization Plan. This plan required centralized control over decentralized operations throughout the United States, whereby field representatives of the Chief of Ordnance could deal efficiently, directly, and authoritatively with industry. The centers are therefore logically located near the industries that produce their specialty in time of war.

Detroit, Michigan, was selected as the center for the automotive office. It has been known as the Office of the Chief of Ordnance-Detroit, since general automotive activities were assumed by Ordnance on 1 August 1942. A gage suboffice is also located in Detroit as a field function of Industrial Service.

The Cannon Suboffice is at Watervliet, N. Y., where the largest American gun-manufacturing plant is located. It is an adjunct of Industrial Service.

For similar reasons, the Small Arms Ammunition, Inspection Gage, and Fire Control suboffices are located in Philadelphia near Frankford Arsenal and their related industries. These suboffices are all supervised by the Industrial Service.

Others, such as Field Service suboffices, will be found at the locations of manufacturing arsenals such as Frankford and Rock Island. (See Manufacturing

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Arsenals). A new Field Service submarine mine suboffice is to be established at Fort Monroe, Va. Research and Development Service suboffices are found at Aberdeen Proving Ground, Maryland; Dover, Delaware; Pinto, Maryland; and Philadelphia, Pennsylvania.

Some suboffices have little Industry-Ordnance function and are merely administrative in character. In this group are the Administration Division (General Office) suboffice at South Baltimore, Maryland, and the engineering Administrative suboffice at Detroit, Michigan. Another is the Safety and Security Division, Office of the Chief of Ordnance, Chicago, Illinois.

The following list completes the present Ordnance Department suboffices:

Field Carriage and Recoil Mechanism suboffice, Rock Island, Ill. (Industrial Service).

Field Director of Ammunition Plants, St. Louis, Mo. (Industrial Service).

Philadelphia Ammunition Supply office, Philadelphia, Pa. (Field Service).

Seacoast and Antiaircraft Carriage suboffice, Watertown, Mass. (Industrial Service).

Although in exempted activities under the Chief of Transportation Corps, Port Ordnance offices at various ports of embarkation should be mentioned. Principal port offices are located at Boston, New York, Hampton Roads (Va.), Charleston (S. C.), New Orleans, San Francisco, and Seattle. Subports at Los Angeles, Portland (Oreg.), and Prince Rupert (B. C., Canada) also have Ordnance offices.

**Manufacturing Arsenals.** These manufacturing arsenals, also known as the 'old line arsenals', are the backbone of American preparedness in time of war. At present there are six, as follows:

| *Name* | *Location* | *Date of Founding* |
|---|---|---|
| Frankford Arsenal | Philadelphia, Pa. | 1815 |
| Picatinny Arsenal | Dover, N. J. | 1880 |
| Rock Island Arsenal | Rock Island, Ill. | 1863 |
| Springfield Armory | Springfield, Mass. | 1777 |
| Watertown Arsenal | Watertown, Mass. | 1816 |
| Watervliet Arsenal | Watervliet, N. Y. | 1813 |

They are supervised by the Arsenal and District Branch, Executive Division of the Industrial Service; the same Branch administers the Service districts and proving grounds.

Each arsenal has the following standard mission assigned to it by the Office of the Chief of Ordnance: "Under the general direction of the Chief of the Industrial Service, and with reference to the assigned materiel, (each arsenal) designs and develops new and improved items, and in emergency manufactures and supplies certain standard items; maintains and develops the knowledge of production; provides for the application of new manufacturing techniques; maintains pilot production lines in step with the industrial arts and operates them continuously for immediate use in supplying early demands of war; and (acts) thereafter as control and advisory center for the major production assumed by industry at large; provides engineering supervision and inspection standards relative to all production of assigned materiel; carries on the necessary activities related to the above".

As may be judged from the above, these 'old line' arsenals are the blood and sinew of Ordnance production. During peacetime, they keep alive the 'know-how' and technique of arms making, working with limited funds, constantly experimenting, testing, and designing the war materials needed in time of war. Manned by civilians under commissioned officer supervision, they are permanent institutions of research and development and should not be confused with temporary wartime plants rushed to completion during emergencies.

When the present World War began, the manufacturing arsenals provided the detailed drawings of much of the equipment our Army needed. The entire expansion program centered about their technical funds of knowledge. Thus, as would be expected, the arsenals are more technical institutions than manufacturing plants, for, at present, they produce less than 50 per cent of the total Ordnance load.

Each manufacturing arsenal has gradually developed and is now assigned its own speciality.

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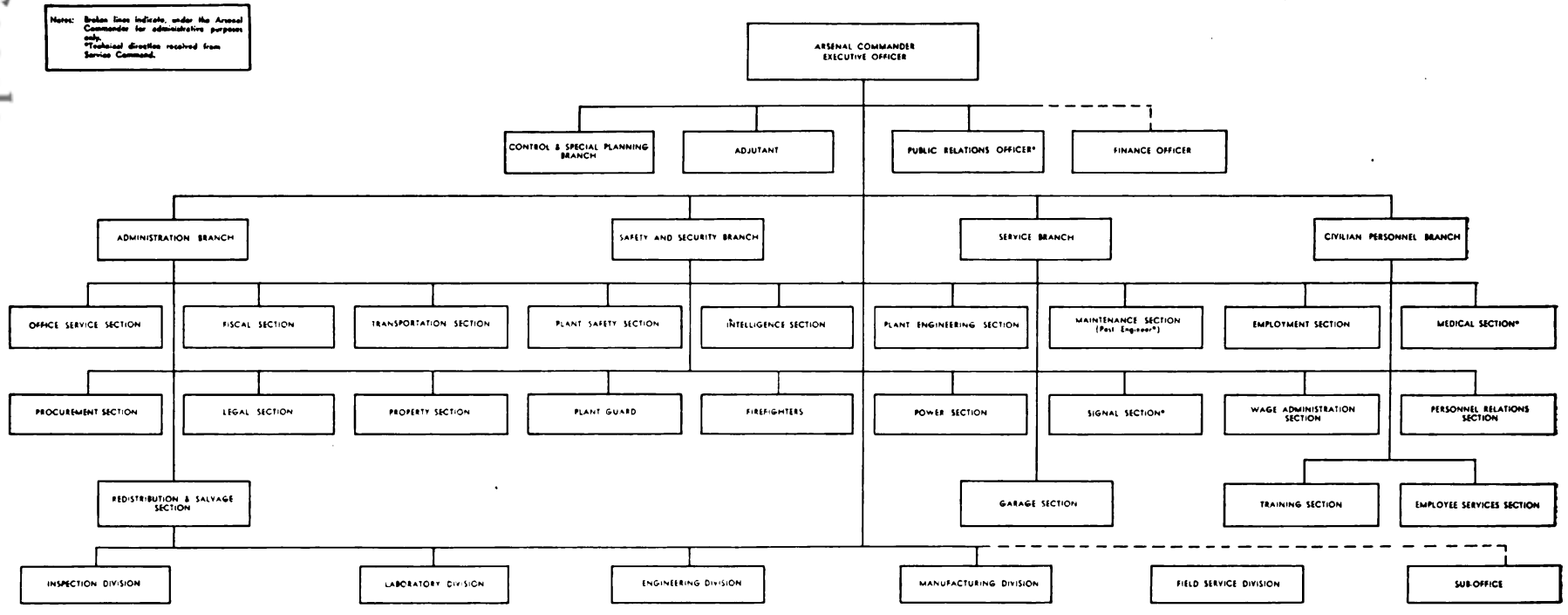



**Figure 22. Organization of Manufacturing Arsenal.**

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Frankford Arsenal is assigned small arms ammunition, artillery ammunition components (such as fuzes), and fire control instruments. It also designs, procures, inspects, and distributes gages for these items. The Ordnance Department directive to Frankford charges the arsenal with basic and technical research in nonferrous metallurgy as related to Ordnance materiel. Frankford also is charged with the administration of Inspection Gage, Fire Control, and Small Arms Ammunition suboffices, in addition to a master depot for fire control equipment major items and spare parts.

In Picatinny Arsenal, long famous for ammunition development, we find specialization in ammunition (except small arms), bombs, pyrotechnics, powder, and explosives.

On the other hand, Rock Island Arsenal supplies the Army with mobile artillery carriages, mounts and hydro-pneumatic and hydro-spring recoil mechanisms, tank and automotive equipment, machine guns and their mounts, metallic belt links, and target materials. This arsenal is assigned basic and technical research on greases, cleaning and preserving materials, and surface finishes. Rock Island finally is charged with the administration of the Field Carriage and Recoil Mechanism suboffice.

Springfield Armory, our oldest arsenal, was established by General George Washington. It still designs and supplies small arms weapons, as it has done during most of its history. The Garand M-1 rifle was developed here.

Seacoast and antiaircraft carriages are the responsibility of Watertown Arsenal. Its mission also includes centrifugally cast gun tubes and spare parts or components for heavy Ordnance materiel. While Frankford Arsenal handles nonferrous metallurgy as related to Ordnance items, Watertown is assigned ferrous metallurgy. Watertown also administers the Seacoast and Antiaircraft Carriage suboffice.

Watervliet Arsenal handles one specialty of cannon, just as Springfield has the principle mission of handling small arms. It handles guns from 37mm to 16 inch, its 16 inch seacoast guns weighing 350,000 pounds. The Cannon suboffice is administered by Watervliet.

The standard arsenal is organized into administrative, supply, and security agencies, and operating divisions. The latter include Inspection, Laboratory, Engineering, and Manufacturing Divisions. (See Figure 22).

**Ordnance Districts.** While the manufacturing arsenals keep the art of munitions alive in peacetime, Ordnance districts are the field agencies of the Ordnance Department which carry designs and specifications through to procurement by manufacture in civilian industry. They perform the final inspection of completed items. These districts, numbering thirteen, have been geographically distributed through the United States for closer operation with industry. (See Figure 23.)

The present Ordnance districts are as follows:

**Birmingham:** Alabama; Florida; Georgia; Louisiana; Mississippi.

**Boston:** Maine; Massachusetts—Worcester County and all counties east thereof, omitting the town of Orange; New Hampshire; Rhode Island; Vermont.

**Chicago:** Illinois—counties of Clark, Coles, Fulton, Hancock, Macon, Mason, McDonough, Menard, Moultrie, Sangamon and all counties north thereof; Indiana—counties of Adams, Benton, Carroll, Case, Huntingdon, Miami, Wabash, Wells, White and all counties north thereof; Iowa; Michigan—upper peninsula; Minnesota; North Dakota; South Dakota; Wisconsin.

**Cincinnati:** Indiana—counties of Blackford, Clinton, Grant, Howard, Jay, Tippecanoe, Warren and all counties south thereof; Kentucky; Ohio—counties of Clark, Darke, Fayette, Green, Hocking, Miami, Monroe, Morgan, Noble, Perry, Pickaway and all counties south thereof; Tennessee (including city of Bristol, Virginia-Tennessee).

**Cleveland:** Ohio—counties of Auglaize, Carroll, Champaign, Columbiana, Fairfield, Franklin, Guernsey, Harrison, Licking, Madison, Mercer, Muskingum, Shelby and all counties north thereof; Pennsylvania—counties of Crawford, Erie, and Mercer.

**Detroit:** Michigan—lower peninsula.

**New York:** New Jersey—counties of Hunterdon, Middlesex, Monmouth, Somerset and all counties north thereof; New York—counties of Columbia, Greene, Sullivan, Ulster and all counties south thereof.

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**Philadelphia:** Delaware; New Jersey—counties of Burlington, Mercer, Ocean, and all counties south thereof; Pennsylvania—counties of Adams, Cumberland, Juniata, Lycoming, Mifflin, Perry, Tioga, Union; District of Columbia; North Carolina; South Carolina; Virginia, with the exception of the town of Bristol; Maryland—except the counties of Allegheny and Garrett.

**Pittsburgh:** Maryland—counties of Allegheny and Garrett; Ohio—counties of Belmont and Jefferson; Pennsylvania—counties of Center, Clinton, Franklin, Huntingdon, Potter and all counties west thereof, except Crawford, Erie and Mercer; West Virginia.

**Rochester:** New York—counties of Albany, Delaware, Rensselaer, Schoharie and all counties north and west thereof.

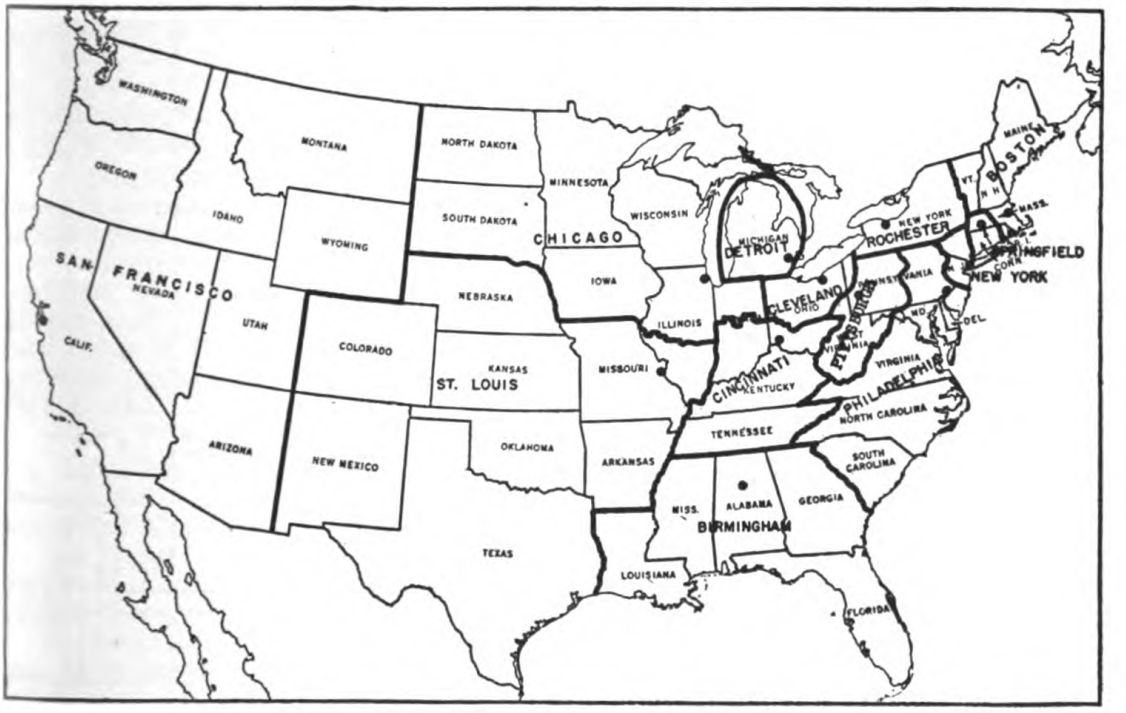



**Figure 23. Location of Ordnance Districts.**

**St. Louis:** Arkansas; Colorado; Illinois—counties of Adams, Cass, Christian, Crawford, Cumberland, Jasper, Macoupin, Montgomery, Morgan, Schuyler, Shelby, and all counties south thereof; Kansas; Missouri; Nebraska; New Mexico; Oklahoma; Texas.

**San Francisco:** Arizona; California; Idaho; Montana; Nevada; Oregon; Utah; Washington; Wyoming.

**Springfield:** Connecticut; Massachusetts—counties of Berkshire; Franklin, Hampden, Hampshire—and also the town of Orange.

Certain districts have regional offices within their territories. For example, the Chicago Ordnance District has regional offices at Fort Wayne, Milwaukee, Peoria, Davenport, and Minneapolis. The St. Louis Ordnance District has regional offices at Dallas, Denver, Houston, Kansas City, and Omaha. For complete current information on the location of district, regional, and branch offices, see "Directory of Ordnance Establishments", which is published quarterly as a supplement to "The Ordnance Digest".

Ordnance District organization has recently been standardized by the Industrial Service (see Figure 24). The usual dstrict is organized principally into the Administrative Groups, the General Office Division, and the Industrial Division.

District Boards indicate the necessity for integration of Ordnance affairs with civilian industry; five normal boards for the District, reporting to the District Commander and his deputy, are as follows:

Board of Awards;
Advisory Board;

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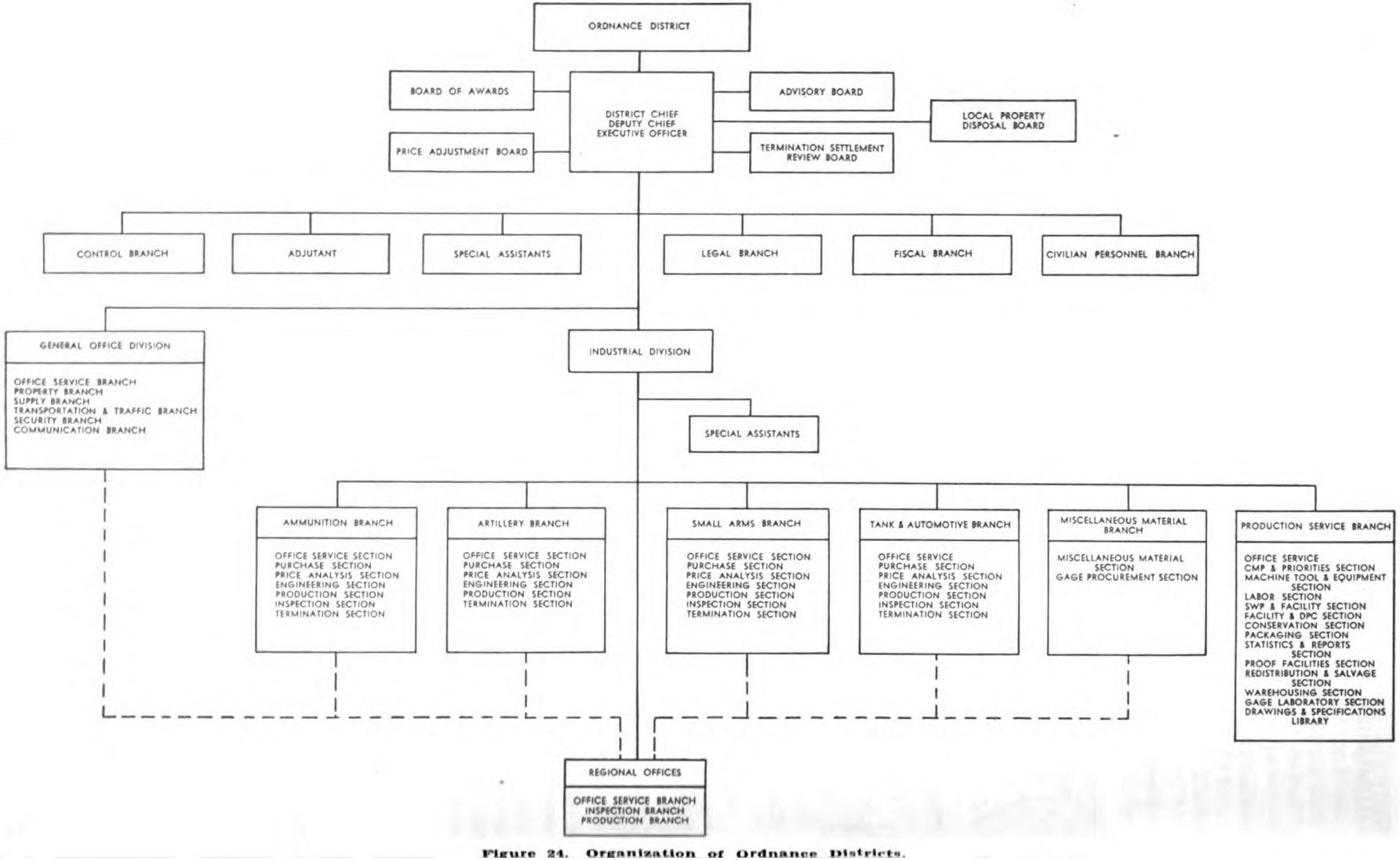



**Figure 24. Organization of Ordnance Districts.**

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Price Adjustment Board;
Local Property Disposal Board;
Termination Settlement Review Board.

The Industrial Division contains the following branches:
Special Assistants;
Ammunition Branch;
Artillery Branch;
Small Arms Branch;
Tank and Automotive Branch;
Miscellaneous Material Branch;
Production Service Branch.

These procurement districts combined with the manufacturing arsenals make possible our armament for the present war. The districts maintain direct contact with the manufacturer; supply him with technical and engineering advice and experience; and, in time of war, negotiate contracts up to $5,000,000. with him without specific approval from Washington. They cannot, however, modify designs furnished them, as designing is a function of the arsenals.

One can appreciate the importance of Ordnance Districts when one realizes that 20,000 Ordnance inspectors, assigned to the districts, are employed in the thousands of contractor and subcontractor plants. The Philadelphia Ordnance District is a good example of the district system. During peacetime its personnel was less than ten; yet it administered or handled 2,040 contracts in 1941, employing 32 officers and 820 civilians. The personnel then included 550 inspectors handling production of 445 contractors. The office in 1941 had funds valued at $200,000,000. It placed prime contracts worth $1,650,000,000 and subcontracts worth $750,000,000 during 1942. On a single contract for light tanks, 284 subcontractors in 21 states received a total of 987 subcontracts for a total of more than $52,626,919.

A Cost-Plus-A-Fixed-Fee Negotiated Settlement Review Board has recently been established in the Office, Chief of Ordnance, which has the function of advising the Chief of Ordnance on the disposition of all 'cost-plus' contracts containing items of cost which require approval from the Army Service Forces. Membership of the board includes the following: Chief, Material Division, Industrial Service; Chief, Research and Development Service; Chief, Field Service; Chief, Fiscal Division; and Chief, Legal Division. The Legal Division of the General Office prepares the case for submission to the board and furnishes an attorney to act as law member of the board.

**Proving Grounds.** Proving grounds have the job of carrying out the field work—designing, developing, testing, and inspecting—assigned them. Actually, the proving grounds operate under the direction of the Service in their field. The present four proving grounds of the Ordnance Department, all handling proof of equipment and ammunition, are as follows:

Aberdeen Proving Ground, Aberdeen, Md.;
Erie Proving Ground, La Carne, Ohio;
Jefferson Proving Ground, Madison, Ind.;
Southwestern Proving Ground, Hope, Ark.

Proving grounds are essentially composed of supply and administrative branches and an operating division or divisions. (See figure 25). The type organization recently standardized provides the following branches:

Control Branch;
Adjutant;
Public Relations Officer;
Administration Branch;
Civilian Personnel Branch;
Safety and Security Branch;
Property Branch;
Medical Branch;
Service Branch.

The proof division receives, assembles, and proof-tests assigned materiel. While its standard type organization has not yet been determined, it will in addition accept or reject manufactured Ordnance materiel after acceptance tests have been performed. It will perform the technical work pertaining to its proof-testing,

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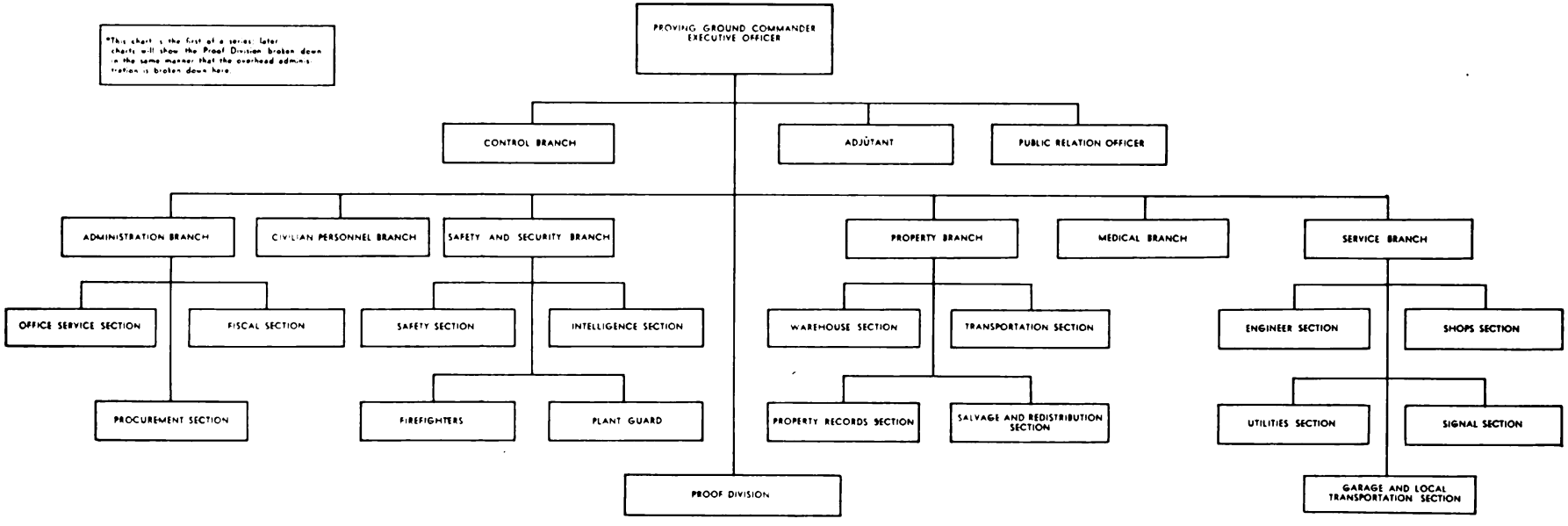



**Figure 25. Organization of a Proving Ground.**

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including gage, chronographic, photographic, duplicating, and electronic work. Proving grounds also perform the necessary machine shop and carpentry work pertaining to the above.

Proving grounds may be assigned tests and research in addition to proof work. Thus, acceptance tests at Aberdeen Proving Ground form only 30 per cent of the Research Center work load. It should also be mentioned that many manufacturers have their own proving grounds with either their own or Ordnance inspectors.

**Government-owned Manufacturing Plants.** Much Ordnance materiel is now produced by government-owned plants. Most of the present plants were erected at Government expense during the current War, as it is not War Department policy to maintain large facilities for war manufacture during peacetime.

These plants may be either government-operated, agent-operated, or contractor-operated. The Industrial Service now has a total of 56 plants working on ammunition, two making artillery items, and eleven manufacturing small arms materiel (See the operating divisions under Industrial Service, page 42.)

Some examples of the plants are:

Alabama Ordnance Works No. 1—Smokeless powder.
Alabama Ordnance Works No. 2—Tetryl, oleum, and sellite.
Badger Ordnance Works—Smokeless powder, oleum, and EC powder.
Baytown Ordnance Works—Toluol.
Bluebonnet Ordnance Plant—Loading plant.
Dickson Gun Plant—Gun tube casting.
Dixie Ordnance Works—Ammonia.
Gadsen Ordnance Plant—Shell forging and machining.
Holston Ordnance Plant—RDX.
Indiana Ordnance Works—Smokeless powder.
Kankakee Ordnance Works—DNT, tetryl, lead azide, TNT, and oleum.
Longhorn Ordnance Works—TNT.
Ohio River Ordnance Works—Ammonia.
Oklahoma Ordnance Works—TNT, tetryl, N-S, and smokeless powder.
St. Louis Ordnance Plant—Small arms ammunition.
Volunteer Ordnance Works—TNT, oleum.
West Virginia Ordnance Works—TNT.

For complete information on government-owned plants see "Directory of Ordnance Establishments," mentioned above.

**Depots.** When Ordnance items have been designed by the arsenals, contracted by the procurement districts, and manufactured by industry, they are stored for issue in depots of various types. These, operated by the Field Service, are located geographically throughout the United States (See figure 26).

Field Service accomplishes its distribution mission with the following types of general supply depots: (1) Master depots; (2) Distribution depots: Distribution Depots (Domestic), Filler Depots (Export), and Special Stock Depots; (3) Storage Depots: Back-up or Reserve Depots, and Advance Depots; (4) Arsenal Depots. For further information on depot and depot operation, see chapter on Supply.

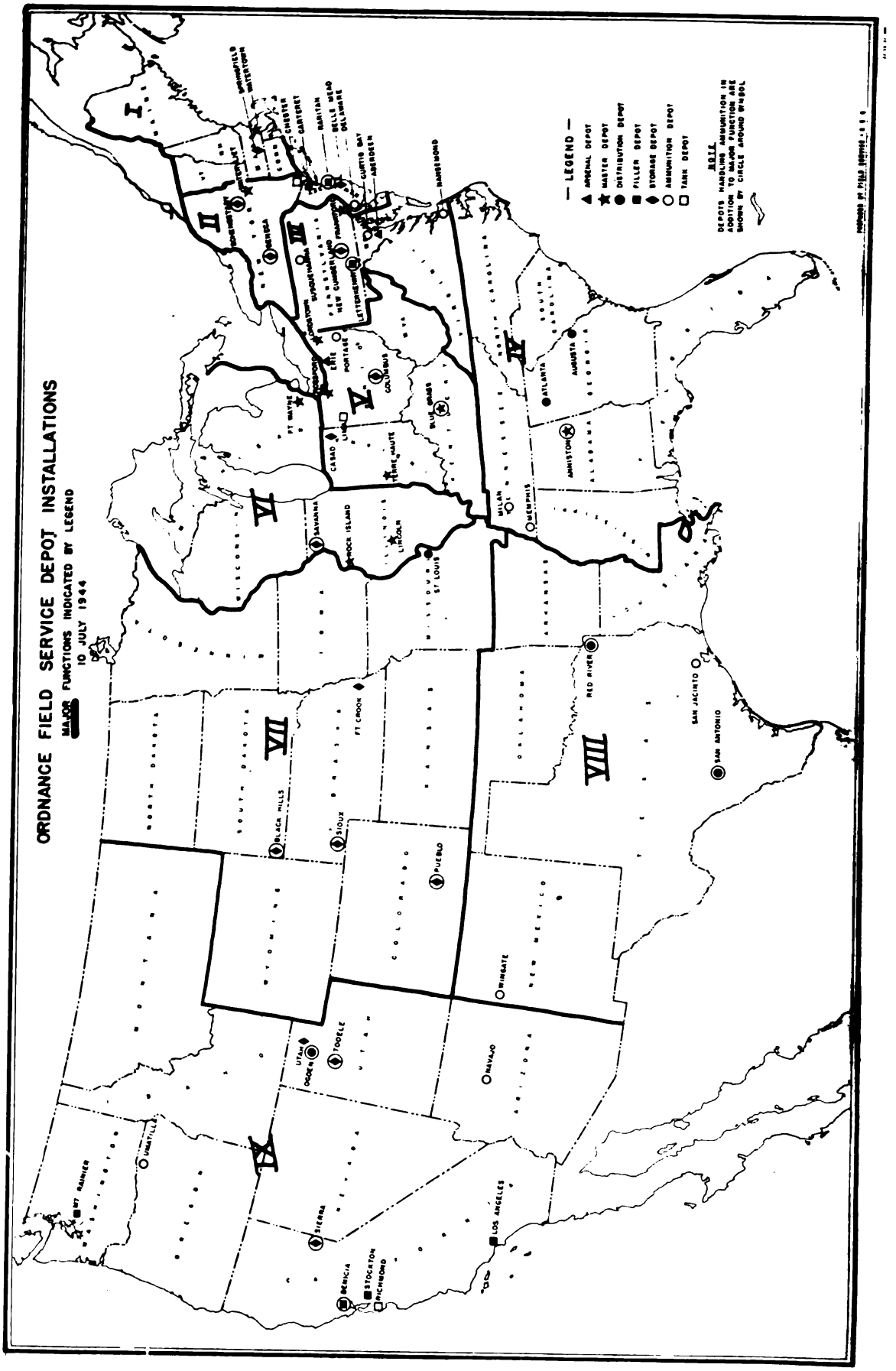
Since field stock control points are essential in the operation of Field Service supply, a Stock Control Branch office has been set up at Detroit, and Field Service suboffices have been located at Frankford and Rock Island Arsenals. They are responsible for directing the distribution and issue of the Ordnance general supplies assigned them. Further details on exact responsibilities may be found in Section II, War Department Supply Bulletin 9-3, dated 18 May 1944.

Field Service also operates a Troop Equipment suboffice at St. Louis which distributes and issues T/O & E Ordnance tools and equipment, grouped as units, to Ordnance troop units.

The mission of each depot is set forth in letter order from the Chief of Ordnance. Missions may have as many as four phases: supply, maintenance, training, and miscellaneous. Yet the normal, prime mission of most depots is supply. In this classification, a depot may have a major mission as a master depot while also acting secondarily as a distribution and filler depot. (Figure 26 shows only *major missions* of the Field Service depots). The Aberdeen Ordnance Depot, for example, has the following quoted mission assigned by Washington:

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## Map of Field Service Depot




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## SUPPLY

a. **General Supplies.**

(1) As a Special Depot. To receive and store all general supplies delivered to Field Service at the Aberdeen Proving Ground and to receive and store organizational accessories, parts, supplies, tools, and equipment therefor, for issue as directed by stock control points.

(2) As a Storage Depot. To receive and store, in accordance with storage authorizations granted by the Office, Chief of Ordnance, Detroit, for the account of Frankford, Rock Island, Watertown, and Watervliet Ordnance Depots, such general supplies as are authorized to be stored in those depots.

(3) As a Storage Depot. To receive and store temporarily such general supplies as may be required due to emergencies or other contingencies.

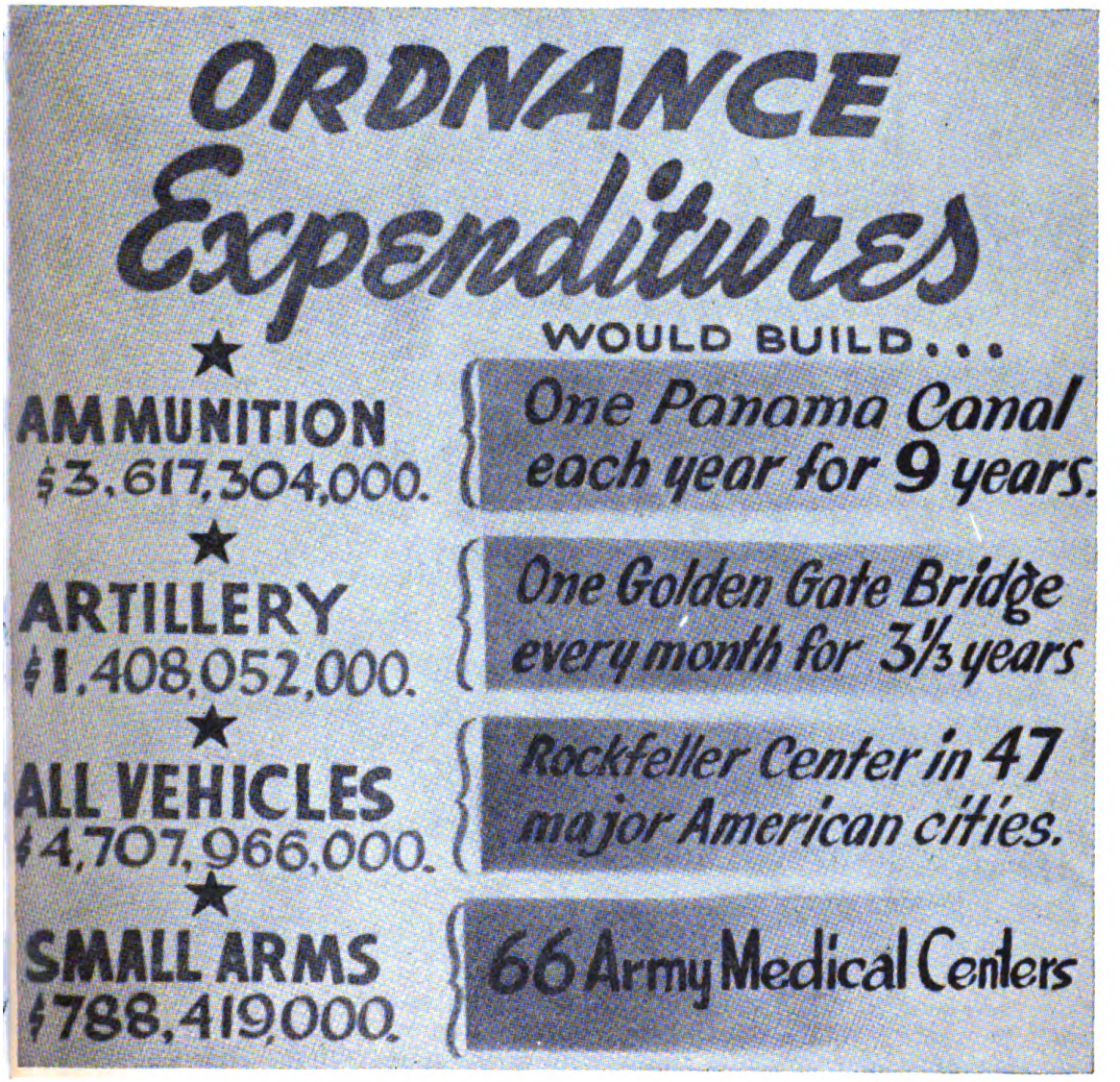



**Figure 27. Ordnance Expenditures.**

## MAINTENANCE

(a) To perform maintenance of automotive vehicles in use by the depot to the extent of existing facilities but not to exceed third echelon (higher echelon maintenance to be evacuated according to existing regulations).

(b) To perform maintenance of materials, handling equipment in use by your depot to the extent of existing facilities or to evacuate such equipment requiring repair beyond depot capabilities in accordance with existing directives.

(c) To repair and to perform necessary modification of property and supplies in storage, to the extent only of existing depot facilities.

(d) To evacuate to other installations property and supplies requiring repair or modification of a nature beyond the capacity of current depot facilities, as outlined in and subject to the limitations of existing directives.

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## OTHER ACTIVITIES

a. To perform preventive maintenance for the cars and preservation of all property and supplies while in storage.

The complete list of Ordnance depots and Ordnance sections of A.S.F. depots which store Ordnance general supplies and summaries of the materials carried will be found in Section VII, War Department Supply Bulletin 9-3, dated 18 May 1944. For figures on storage space utilized as of October 1943, see Figure 28.

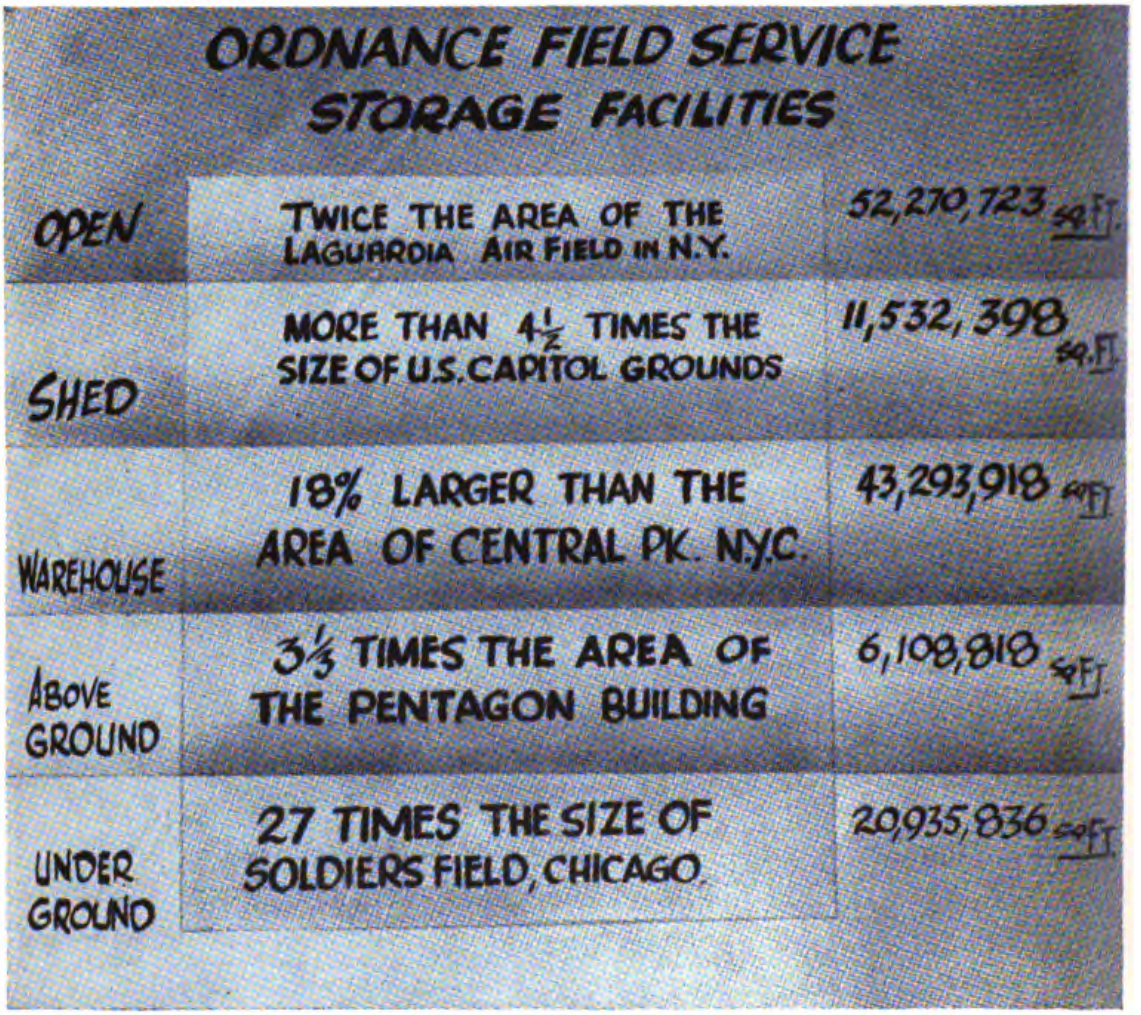



**Figure 28. Ornance Storage Space.**

In conclusion, the Ordnance Department is the largest of the technical services in the United States Army. From the origin of an idea for a weapon, through designing, contracting, manufacturing, inspection, storing, issuing, use, maintenance, reclamation, and salvage or storage for future use, Ordnance is rendering a vital service to victory. Its expenditures run into millions, as shown in Figure 27. One of the finest compliments paid Ordnance by the field is the following from Major General Stafford L. Irwin concerning Ordnance activity during the North African campaign: "Day and night and under fire, they (the Ordnance soldiers) patched up our guns and tanks and sent them back into combat. Ordnance was always on the job behind the lines and in front of the lines, from Casablanca to Von Arnim's surrender. They kept our tanks and motorized columns rolling over that thousand-mile wilderness of burning rock and sand." When the campaign was over and the counts were made, the American troops emerged from action with the same amount of guns and vehicles with which they had entered combat!

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# CHAPTER 2

# MILITARY ADMINISTRATION

**Introduction.** There is great difficulty in developing the subject of military administration in a permanent volume of this type. In any organization which has had to expand to the proportions of our present day army in such a short space of time, the administrative problem is tremendous. Procedures are changed rapidly; details that have been carefully learned are swept away with little or no regard for the individual who has racked his brain trying to master them. Consequently, any article on the subject runs the risk of being outmoded before it leaves the presses.

However, in the space allotted, we are going to attempt to give you a picture of the administration that might face the commander of any Ordnance company.

It is to be remembered that a great many of the administrative problems that are taken over by a regimental or battalion headquarters in the Infantry or any of the other arms will be thrown right into the lap of the harrassed Ordnance officer simply because part of the time he will be his own boss—in effect, his own battalion or regimental commander. He will be running what has come to be known as a 'separate company.' For all of this honor heaped upon him, he will face what will probably appear to be a maze of everchanging administrative detail.

Each subject taken separately, however, makes interesting reading and will prove worthwhile to know. Only after a basic background has been established will you enjoy and understand army administration. You will find that it is unusually simple for the task at hand. Only the novice cries, 'Red tape' when faced with army paper work.

It is the duty of the company commander to see that his men are kept free of administrative worries and that they receive all possible assistance in legal and personal matters.

## THE ARMY PERSONNEL SYSTEM

**General.** The Army Personnel System includes all the procedures necessary in personnel management and personnel record keeping. It was designed to relieve company commanders of the burden of administrative detail and at the same time to provide a uniform means of keeping necessary records.

Prior to 1940, the problem of record keeping in the army was a minor one. Then the army was small and those poor corporals with ten years' service who were called 'company clerks' knew their jobs thoroughly. Regulations remained static and few men were transferred. They reached the point where they knew everything that there was to know about the job of being a company clerk.

With the advent of the Selective Service Act and the proximity of war, it became evident in the summer of 1940 that something would have to be done. Farsighted individuals could foresee company clerks who had reached the point of perfection becoming 1st Sergeants, company commanders, and many of them in time even field officers. A plan was formulated for taking administration out of the companies and centralizing it in a higher headquarters. This new plan, as it was set up, made provision for the fact that the men coming into the army, although clerically well trained, did not know army administration. This new plan placed them under proper supervision where they would be able to do the job of army record keeping with comparatively little difficulty. The system as originally devised was very simple. Today, however, it has actually graduated into three separate and distinct systems which are to be taken up in detail later.

Before we can understand the three systems of personnel management now in use, we must first understand the organization of a higher headquarters from an administrative point of view.

At the outset, it should be noted that in Ordnance one does not face a static situation as in the Infantry. Often the Ordnance company may be operating separately or under the control of a battalion, group, or army; therefore, some of



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the problems that one may encounter in Ordnance will have to be solved as best they can. In any higher administrative headquarters certain things do, however, remain fixed. At the top there is always a commander who is completely responsible for that unit. He is responsible for his unit's training, safety, security, welfare, and administration. Assisting him is an executive officer, the 'whip', whose job it is to see that the policies established by the C.O. are carried out. He is an understudy, so to speak, of the commanding officer and is receiving valuable training in the running of the unit which he may some day command himself. Below the executive officer is the adjutant; he is charged with the keeping of all administrative records except those pertaining to personnel only. The records pertaining to personnel are kept by a personnel officer. He is responsible for keeping the service records of enlisted men, payrolls, insurance, 201 files, etc. Confusion sometimes develops when a person is in doubt as to the duties performed by the adjutant and the personnel officer. Take for example the situation when a barracks burns down. All records necessary to clear up the problem will be the responsibility of the adjutant. However, in the event that some of the personnel were burned to death in the barracks, the records pertaining to those men such as the reports of death, insurance, etc., will be handled by the personnel officer. With that picture in mind, let us go on to the three systems of personnel management that are used in the army today.

**The Decentralized System.** This system is used by fixed units, i.e., posts, garrisons, schools, infantry regiments, etc. The term 'fixed units' does not necessarily mean that the unit is going to remain in one place and that it will never move. It means that if it does move, it will move as a unit. For example, an infantry regiment may move from a combat zone and back again and yet its administrative problem remains the same. The companies remain at all times under the administrative control of the regiment itself. Operating the personnel system is the personnel officer and the personnel sergeant major (usually a technical sergeant), supervising the work done by the personnel clerks who are drawn from the various companies administered by the headquarters. The personnel clerks, however, are still members of their own companies. Their duties take them out of the companies only in a physical sense. In addition to the personnel clerks that are drawn from the various companies, there will be organically assigned to the headquarters a number of additional clerks who will be put in charge of the various subsections of the personnel office.

That brings us, then, to the actual breakdown of the personnel office existing in the decentralized system. The *enlisted men's subsection* takes care of all the basic records pertaining to enlisted men such as service records, payrolls, statements of charges, insurance, allotments of pay, deductions of pay, monthly personnel rosters, discharges and any of the other records kept of the enlisted personnel of that unit. In addition, 201 files on enlisted men and general office supplies are maintained here.

An *officer's subsection* maintains the records pertaining to commissioned personnel. These records include pay vouchers, efficiency reports, monthly personnel rosters, insurance, allotments of pay, promotions, and 201 files.

A *reports and returns subsection* consolidates information from the reports received from the various companies and forwards it to higher headquarters. Morning reports are checked here, strength returns are prepared, daily ration requests are checked and consolidated, and ration reports are forwarded for use in drawing rations. This reports and returns subsection is a statistical group where any strength figures on the unit may be obtained.

The *correspondence and orders subsection* prepares all correspondence on both the enlisted and commissioned personnel. Insofar as the orders are concerned, the correspondence and orders subsection will only draft the orders. The job of reproduction and distribution is usually handled by another section.

The *classification subsection* maintains soldiers' qualification cards and officers' and warrant officers' qualification cards.

Finally, there is the *miscellaneous section.* This is not a subsection and is not under the complete control of the personnel officer. It is, rather, a section jointly controlled by the adjutant and personnel officer. It handles all incoming and outgoing mail for the entire headquarters. It also handles miscellaneous cor-

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respondence and maintains a stenographic pool. Here will be found the mimeograph machine for the reproduction of all orders. In addition, the daily bulletin is published and distributed by this section. Here, too, is located the messenger service.

It will be noted from the above that under the decentralized system all personnel clerks who are drawn from the various companies and assigned to one of the subsections will become very efficient in their jobs. As a matter of fact, some organizations have gone so far as to break down some of the subsections further. They have established under the subsection different groups that do nothing but one specific job. For instance, under the enlisted men's subsection there may be a group headed by a sergeant that will do nothing except handle payrolls. From this it is easy to see that the clerks drawn from the various organizations are going to know one particular job extremely well. In fact, they will become specialized to a high degree, and, with the technical supervision of the personnel sergeant major and the personnel officer, become expert in their specialties. Care should be exercised to see that the men are rotated now and then so that they will have, in case of necessity, an over-all picture of the job at hand.

While specialization has its virtues, it is at the same time the only shortcoming of this system. The specialist will know everything there is to know about payrolls or morning reports, but will know very little of the other records that must be maintained. In Ordnance, where companies are often pulled away from a headquarters with little advance notice, this system has sometimes proved itself very unsatisfactory. The clerk, if he is to do his job well, must have a more complete and over-all knowledge than that gained by working under the decentralized system. Therefore, the second system of personnel managament was devised. Under this system, known as the centralized system, the army has been able to maintain uniformity. Under the centralized system the unit commander is relieved of much of this administrative work, and the personnel clerk is so adequately trained that if his company must operate separately he can still handle his job.

**The Centralized or Combat System.** Under this system all company records are kept by the personnel clerk for his own company but he is located in the personnel headquarters under the supervision of the personnel officer, personnel sergeant major, and other clerks that may be assigned organically to the headquarters. This centralized or combat system is generally used by units in the field. It facilitates flexibility and enables a company to move and operate more rapidly by itself. The personnel clerk will have a desk in the personnel office and performs all personnel matters pertaining to his company. He will maintain the 201 files on all personnel, make up the payrolls, pay vouchers, service records, soldier's qualification cards, and officer's qualification cards; he will prepare allotments, maintain correspondence, strength reports, and the hundred and one other administrative matters that may find their way to his particular company. This requires the personnel clerk to have a more complete general knowledge of the subject of personnel management and will also require that more supervision be exercised by the personnel officer. More flexibility is provided by this system. This flexibility more than offsets the additional knowledge the personnel clerk can secure through specialization under the decentralized system.

**Separate or Detached System.** This system is no more than the result of moving an organization out from under the supervision of a higher administrative headquarters. Here all the personnel records will be kept within the orderly room. The personnel clerk will do his job under whatever supervision he may be able to get from the first sergeant, administrative officer, or company commander. There is only one thing that will keep this system from breaking down and that is a personnel clerk who is an outstanding individual and knows his job. Here there will be no technical adviser for the man to fall back on. It is up to him to see that the job is done.

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## COMPANY AND PERSONNEL RECORDS

### THE MORNING REPORT

The Morning Report, a permanent, statistical and historical record with ultimate custody in the office of The Adjutant General, is the daily history of a company or headquarters. The preparation by the first sergeant and subsequent verification should be meticulous to insure thoroughness and accuracy in all remarks and data entered in the report.

**Persons Accounted for.** Whether at the Anzio beachhead, in Cherbourg, or on the War Department General Staff, all personnel of the Army will be accounted for daily on the morning report, whether they are assigned, attached unassigned, or attached from other organizations. It is from this report that the strength of all organizations and the status of all individuals is known, including every officer, army nurse, warrant officer, flight officer, public health officer, coast and geodetic survey officer, dietician, physical therapy aide, aviation cadet and all enlisted personnel on active duty. Any changes affecting their status will be reflected in the morning report.

Personnel of arm or service staff sections, including chaplains and medical personnel assigned to duty with or attached by tables of organization to an organization or headquarters, will be carried in the same manner as personnel regularly assigned to that organization or headquarters.

Personnel assigned, attached unassigned, or attached from other organizations to a station or parent organization, and on the same day reassigned, attached unassigned, or attached from other organizations to a subordinate unit will appear on the morning report of the subordinate unit and not on that of the parent unit. For example, a soldier who is tranferred and assigned to the 800th Ordnance Battalion (M. and S.) and on the same day is reassigned to a company within that battalion, will be carried on the morning report of the company and not on the battalion morning report.

**Preparation and Disposition of the Morning Report Forms.** The Morning Report W.D., A.G.O. Form No. 1 is published in books containing 50 sets of three sheets each. There is no longer a separate report for headquarters organizations.

The morning report day is a 24 hour day commencing at 0000 and ending at 2400; that is, from midnight to midnight. The first sergeant should prepare his morning report as soon as possible after 2400 of the morning report day and in no case will the preparation be later than 0800 following the morning report day. The morning report should be typewritten; however, if there is no typewriter immediately available, indelible pencil or ink may be used. Abbreviations as authorized by AR 850-150 will be used throughout, and punctuation is used only when it becomes necessary for the sake of clarity. Morning reports may be classified when necessary under AR 380-5.

The first copy (white), which is the original of the three copies, is the copy marked 'WD copy thru MRU or SCU.' This copy, together with the third or UPS copy, is forwarded to the unit personnel section at such hour as may be prescribed. These copies will be edited by the unit personnel section for errors. The first copy is then forwarded to the MRU (machine records unit) or SCU (statistical control unit) the same morning following the close of the morning report day. If entries for one day exceed the space allotted on the forms, additional sets will be used lining out the front side and making appropriate remarks on the reverse side marked "continuation." For a separate company, that is, a company not a part of a battalion, the white and green copies are submitted to the next higher administrative headquarters. The MRU or SCU then retains these white copies until such time as the Adjutant General directs them to be forwarded.

The second copy (yellow) is marked 'Reporting Unit copy' and is retained by the organization making the report. The disposition of these retained copies will be as directed by the Adjutant General.

The third copy (also white) is marked 'UPS copy' and is forwarded together with the white copy to the unit personnel section. This copy is to be used to make the necessary entries in other records such as the service record and also to make up such reports as are required from unit personnel sections. The personnel officer or other designated officer initials this copy, indicating that the entries have been

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properly transcribed into other records. It is then a permanent record of the unit personnel section. For Army Air Forces organizations, which include Ordnance units on duty with the Army Air Forces, the third copy will be forwarded to the base or station commander at an hour established by the base commander on the day following the morning report day. The disposition of these copies will be prescribed by the Commanding General of the Army Air Forces.

Organizations en route retain their morning reports for the day of departure and the days en route until such time as they arrive at their destination. The station of destination or port of embarkation will then dispose of the reports in the usual manner.

**Heading.** The entries in the heading are self-evident. The day, month, and year are shown on the top line, followed by the designation of the organization on the second line. It is required that the designation shown be exactly the same as the designation shown on the T/O or manning table under which the organization is operating. The parent unit, if any, is shown after the designation of the organization and then the branch of service. The station or location is the permanent assigned station. For units outside the continental United States the actual location or APO number is shown.

**Remarks.** Whenever a man's name appears on the morning report, the last name, first name, middle initial, Army serial number, and grade will be shown. The MOS (military occupational specialty) is shown whenever an individual has a change in MOS or is assigned or attached unassigned to an organization for the first time. The CODE column is for use by the MRU or SCU. The arm or service of an officer is shown immediately following his name in all cases. However, the arm or service for an enlisted man appears only when it differs from the arm or service of the organization reporting. See the model remarks below.

MORNING REPORT ENDING 2400 12 (DAY) Aug (MONTH) 1944 (YEAR)

ORGANIZATION 86th Ordnance Medium Maint Co (PARENT UNIT) Ord (ARM OR SERVICE)
(HQ, CO, DET, ETC)

STATION OR LOCATION APO 908

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Alexander Andrew M (INF) | 31 869 845 | Sgt | | |
| Atchd dy to fur (7 days) | | | | |
| Cooper Jackson F (ORD) | O-1 562 899 | 2d Lt | 2120 | |
| Asgd & jd from 68th Ord Co (ASF) Fort Tory | | | | |
| Col MCO 63245 Race W Comp AUS per par 6 SO | | | | |
| 7 Hq Fort Tory dy Auto O (4805) | | | | |

When an individual's basic status is attached unassigned or attached from other organizations, the basic status will be shown immediately preceding the remark each and every time his name appears on the morning report. (Note the remark above for Sgt. Alexander.)

Remarks required are reported on the line immediately beneath the individual's name, serial number, grade, and MOS if applicable. The remark is indented two spaces as indicated in the example above. If two or more individuals are affected by the same change, thereby requiring but a single remark, the full name, arm or service if necessary, Army serial number, and grade will be listed for each man on consecutive lines. The remark is then entered on the next succeeding line and indicates the number of men affected, as noted in the following illustration.

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Carson Thomas H | 32 610 358 | Pvt | | |
| Boor Edwin T | 34 161 103 | Cpl | | |
| Dunn Dan W | 33 079 228 | Pvt | | |
| Above 3 men dy to AWOL 0915 | | | | |

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When no changes affecting the status of personnel occur during the morning report day, the words 'NO CHANGE' will be entered and the strength will be transcribed from the previous day.

Gains and losses as well as changes in grade or basic status will be substantiated by corresponding changes in the strength section.

*Group Remarks.* When an identical remark covers a change on ten or more individuals, a 'group remark' accompanied by a special order or official extract thereof may be entered in lieu of listing each individual's name and a remark. It is necessary in this type of remark to state the number of individuals affected and make reference to the paragraph, special order, and headquarters issuing the order, followed by the entry, 'copy atchd.' The date of the special order will not be shown. Paragraphs of a special order may be grouped to bring together the ten or more names necessary to make the group remark. All paragraphs which are not pertinent will be lined out. Changes in grade or MOS may be made in a group remark regardless of the grades or military occupational specialties involved. A copy of the special order will be folded so that it does not extend beyond the edges of the morning report form and will be stapled to each copy of the morning report in such a manner that it may be read without removing it from the morning report. A blank line will be left following every group remark. See below.

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| 12 EM promoted, 2 to T Sgt, 5 to Sgt, 5 to Cpl, per pars 5, 8 & 9 SO 118 Hq 5th Ord Bn Fort Neon Ky copy atchd | | | | |

If a group change is not covered by a special order or copies of special orders are not available, an authenticated list may be used in lieu thereof and may be appended in the same manner as special orders with the remark, 'list atchd incl 1.' When these lists are available they may be used; however, it is not intended that they be made up expressly for this purpose. An illustration of such a group remark follows:

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| 10 EM dy to fur (10 days) list atchd incl 1 | | | | |

*Sample Inclosure to Morning Report.*

**12th Ordnance Medium Maintenance Company** **6 Sep 44**

| Name | ASN | Grade |
|---|---|---|
| Johnson Alfred N | 41 006 134 | Pvt |
| Black Henry A | 31 896 884 | Pvt |
| Caldwell Bertram F | 32 007 896 | Cpl |
| Brown Joseph H | 32 853 207 | Sgt |
| Davis Peter L | 33 064 675 | Pvt |
| Donkyl Oscar A | 36 142 698 | Cpl |
| Levins James R | 42 006 194 | Pvt |
| Thomas Frank | 61 839 654 | Pvt |
| Simon Edward | 36 419 003 | Pvt |
| Viers Peter F | 38 964 281 | Pvt |

ROBERT M. SMALL
Capt, Ord Dept

Incl. #1 to M/R
For 6 Sep 44

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**Corrections.** Prior to sending the white copies to the SCU or MRU, the morning report may be corrected by lining out incorrect entries and entering the initials of the officer signing the report. Once the MRU and WD copies have gone forward the only way the entries may be changed is by a remark on the morning report of a succeeding day. Only in the instance of correction on a final morning report where a unit is disbanding will a corrected copy of the report be sent forward.

After the white and green copies have gone forward, entries of a preceding day which are to be corrected, rescinded, or amended, will be preceded by the word "CORRECTION" (in capital letters), followed by the date of the morning report on which the erroneous remark appeared. The erroneous remark will then be repeated and followed by the correct remark. The latter is prefaced with the words "SHOULD BE" (in capital letters). To change or amend a group remark, it is not necessary to show the entire erroneous entry but only that part which is to be amended or corrected. See the examples noted below:

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| CORRECTION (6 Aug 44) | | | | |
| Jamison Bruce M | 41 007 864 | Pvt | | |
| Dy to fur ( 7 days) | | | | |
| SHOULD BE | | | | |
| Jamison Bruce M | 41 007 864 | Pvt | | |
| Dy to fur (5 days) | | | | |
| CORRECTION (5 Aug 44) | | | | |
| 25 EM asgd & jd | | | | |
| SHOULD BE | | | | |
| 24 EM asgd & jd | | | | |

The absence of a date after a remark indicates that the change occurred on the morning report day. If the change occurred on a previous date, that previous date will be shown in the remark; for example, if a man went from duty to arrest in quarters on the 5th of the month, and no remark was made on the morning report for that day, it would be shown on a later date as follows:

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Goode James H | 31 983 203 | Pvt | | |
| Dy to Ar in qrs 5 Aug 44 awaiting trial | | | | |
| charged arson | | | | |

**Assigned.** An individual is carried as assigned when he fills an allotted T/O position vacancy. On permanent change of assignment within the continental United States or within oversea theaters, individuals or groups of individuals will be dropped by their former organization and picked up by their new organization on the same date whether or not a change of station is involved. This date is computed by the unit issuing the orders transferring the man, and is based either upon mailing time or upon travel time whichever is the most applicable. The date is known as the "effective date of change on morning report" and will be referred to as the EDCMR. The EDCMR will be shown on all orders directing a permanent change of assignment within the continental United States, including transfers to and from PE's (Port of Embarkation) and within oversea theaters. Normally, where the mail time and travel time are in excess of one day, an additional day is added to insure that the receiving organization will pick up the individual on the same date as he is dropped from the losing organization. For

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example, Corporal Jones is being transferred from the 78th Ordnance Company, Fort Wyomy, Md., to the 92d Ordnance Company, Fort Whist, Texas. The travel time is 4 days. He departs on 2 Oct 44. The EDCMR is then 7 Oct 44. On the date of departure, entries are made to indicate both the departure date and the EDCMR. Let us assume that the following entry for 2 Oct 44 is an excerpt from the morning report of the 78th Ordnance Company.

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Jones Anthony R | 31 864 289 | Cpl | | |
| Dy to DS pending asgmt to 92d Ord Co (ASF) | | | | |
| Fort Whist Texas par 10 SO 118 Hq Fort | | | | |
| Wyomy Md departed (EDCMR 8 Oct 44) | | | | |

During the time between the departure date and the EDCMR the individual will be carried as on detached service in the strength section of the losing organization. On the EDCMR date, 7 Oct 44 in this case, he is dropped from the strength section and the following remark would be entered.

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Jones Anthony R | 31 864 289 | Cpl | | |
| Reld asgd (re remark M/R 2 Oct 44) | | | | |

The receiving organization, in this case the 92d Ordnance Company, will pick up the individual on the EDCMR regardless of whether or not he has arrived. It is not necessary for the receiving organization to indicate the EDCMR; for example, note:

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Jones Anthony R | 31 864 289 | Cpl | 613 | |
| Asgd & jd from 78th Ord Co (ASF) Fort | | | | |
| Wyomy Md par 10 SO 118 Hq Fort Wyomy Md | | | | |
| Race W MCO 348 | | | | |

In the event that the individual arrives prior to the EDCMR, he will be picked up and carried as attached from the losing organization until the effective date of change. If the man fails to arrive on the EDCMR he will be carried as detached service en route to join, unless he has been granted a delay en route in which case the man will be carried on the EDCMR as on furlough. The delay en route is not added to compute the EDCMR.

Remarks pertaining to personnel gained as assigned will include:

(1) Military Occupational Specialty Code number (MOS) (TM 12-427 for EM and TM 12-406 for officers.)

(2) Statement that the individual is assigned.

(3) Whether the individual has joined the organization.

(4) If not joined, the reason not joined.

(5) Unit from which transferred.

(6) Duty if known at the time of assignment (officers only). Information contained in TM 12-406.

(7) Main Civilian Occupation Code number (MCO). Information contained in TM 12-405 for officers and TM 12-426 for enlisted men.

(8) Limited service when applicable (officers only).

(9) Race.

(10) Component (officers only).

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(11) Authority (headquarters, special orders number, and paragraph number).
(12) For transfers within the United States, the major command of assignment i. e. AGF, ASF, AAF, when known, will be stated following the name of the unit from which the person is transferred.
See the following remarks:

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| James William R (ORD) | O-5 983 | Capt | 1193 | |
| Asgd & jd from 189 Ord Co (ASF) Fort Tyne Ia assumed comd (4512) MCO 61432 Race W Comp RA per par 8 SO 91 Hq Fort Tyne Ia | | | | |
| Walker Damon T | 31 829 343 | Cpl | 511 | |
| Asgd & en route to jn from 99 Ord Co Fort Tearn La (ASF) Race W MCO 123 par 11 SO 128 Hq 5 Ord Bn Fort Tearn La | | | | |

**Attached Unassigned.** An individual is reported as attached unassigned when he is not accounted for in the strength of any other organization and is not assigned. Inasmuch as a man may get a permanent change of assignment while in this status, the discussion above on the effective date of change for the morning report is also applicable. The information required in a remark is identical with that required for the remark when a man is assigned except that the statement is made that the individual is attached unassigned rather than assigned. As illustration, note:

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Kelly Elmer S | 32 896 443 | Pvt | 521 | |
| Atchd-unasgd & jd from ASFTC-Ord APG Md MCO 131 Race W par 29 SO 164 Hq ASFTC-Ord APG Md | | | | |

**Attached From Other Organizations.** An individual is reported as attached from another organization when he becomes attached to the reporting organization but remains an assigned or an attached unassigned member of another organization and is included in the strength section of his assigned organization.

Remarks pertaining to individuals attached will include:
(1) Statement that the man is attached and the name of the organization to which the man is assigned or attached unassigned.
(2) Whether the individual has joined, and if not joined, the reason.
(3) Purpose of attachment.
(4) Duty if known at time of attachment (officers only). See the following remark:

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Gomser Roper B | 38 628 901 | Cpl | | |
| Atchd & jd from 61 Ord Co Fort Spot Vt for dy | | | | |

No remark is necessary for men attached for rations and quarters as all information affecting rations will now be shown in the Daily Ration Request. Units or detachments attached to another unit for administration will prepare their own morning report and will not appear on the morning report of the unit to which they are attached.

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**Transfer From Organization By Relief From Assignment Or Relief From Attachment.** Remarks pertaining to individuals relieved from assignment or attachment will contain the following:

(1) Statement that the individual is relieved from assigned, attached unassigned, or attached from other organization.

(2) Statement indicating unit to which the man was transferred, assigned, or attached.

(3) If the man has departed, or, if he has not, the reason he has not departed.

(4) Authority (headquarters, special orders number, and paragraph number.)

See the following sample remark:

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Bailey Jack L | 37 345 632 | Pvt | | |
| Reld from atchd & returned to 76 Ord Co | | | | |
| Fort Joy NY departed par 18 SO 6 Hq Ft | | | | |
| Buoy Ga | | | | |
| | | | | |

**Special Duty.** An individual is said to be on special duty when he performs duty for another organization but reports at least daily to the organization to which he is attached, assigned, or attached unassigned. No remark is necessary in the remarks section of the morning report for a man on special duty; he will however be carried in the strength section of his assigned organization as present for duty.

**Detached Service.** Whenever a man is performing duty for and being administered by an organization other than the organization to which he is assigned or attached unassigned, he is said to be on detached service and the remark reporting this status will include:

(1) Statement that individual is on detached service.

(2) Unit or organization where detached service is to be performed.

(3) Authority (headquarters, special orders number, and paragraph number.)

(4) Statement showing relief from principal duty (officers only) where applicable.

(5) When man returns from detached service, it is necessary to show the organization where the detached service has been performed.

In illustration:

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Bellows Sam S (ORD) | 0-393 893 | 1st Lt | | |
| Dy to DS 66 Ord Co Fort Hislor Va par | | | | |
| 8 SO 99 Hq 6 Ord Bn | | | | |
| | | | | |

**Temporary Duty.** A man is on temporary duty when he is absent from his assigned or permanent station and is performing duties incident to his regular duties and is being administered by the organization to which he is assigned or attached unassigned. For example, a man whose regular duty is an instrument repairman goes to another unit to repair their instruments. Assume that he is to be administered by his parent organization. Is he on detached service or temporary duty? Temporary duty only, because he is performing a duty which is incident to his regular duties and he is being administered by his parent organization.

The organization of assignment must include the following points in their remark:

(1) Statement of departure for temporary duty.

(2) Organizations or places where temporary duty is to be performed.

(3) Approximate duration of temporary duty.

A sample remark is noted below:

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| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Michael Thomas | 31 863 915 | Sgt | | |
| Departed TDY 65 Ord Co Fort Berry Mo | | | | |
| approx 14 days | | | | |

When the man returns from temporary duty a remark is merely made to that effect, which does not include the itinerary of the individual. See below:

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Michael Thomas | 31 863 915 | Sgt | | |
| TDY 65 Ord Co Fort Berry Mo to dy | | | | |

An individual on temporary duty and on duty at the close of the morning report day will be reported on the morning report of the organization with which he is performing temporary duty. The remark must include, as set forth in the example below:

(1) Statement of arrival for temporary duty.
(2) Approximate duration of temporary duty.

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Michael Thomas | 31 863 915 | Sgt | | |
| Arrived TDY approx 14 days | | | | |

When the man leaves the organization where temporary duty was performed indicate the fact of departure.

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Michael Thomas | 31 863 915 | Sgt | | |
| Departed upon completion of TDY | | | | |

An individual on temporary duty who arrives and departs from an organization on the same day is not reported on the morning report of that organization.

**Sickness.** A remark pertaining to sickness is made whenever a man's status changes either from duty to hospital, hospital to duty, duty to sick in quarters, sick in quarters to duty, hospital to sick in quarters, or sick in quarters to hospital.

The remark must include:

(1) Statement of sickness.
(2) Statement of previous status.
(3) Line of duty status.
(4) Departure, if any, to a general hospital, civilian hospital, or a hospital at another post will be shown. The remark will indicate the name and location of that hospital.
(5) If not in line of duty, AR 35-1440, AW 107, EPTI or EPTE will be added. (Any change in this status will be indicated by an appropriate remark)

The following illustrates the proper form of the remark:

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Macill Clod F | 33 507 621 | Cpl | | |
| Dy to sk sta hosp NLD 35-1440 | | | | |

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**Leave or Furlough.** The day a man departs on leave or furlough, the day of return, or the day of extension of leave or furlough will be reported together with the number of days allowed. The remark for extension of furlough or leave is made on the date of the extension.

Remarks pertinent to personnel on furlough or leave must include:

(1) Statement that the individual has departed or returned from furlough or leave. (No entry is required for a man going on pass).

(2) For departure, the number of days authorized is reported; for return, the actual number of days absent is indicated.

(3) For leave, it is necessary to show the nature of the leave, i.e., ordinary, sick, or delay en route.

Sample remarks are noted below.

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Wallace Hanford H (ORD) | 0-1 001 400 | 2d Lt | | |
| Dy to ordinary lv 10 days | | | | |
| Peters Brandfield S | 31 896 666 | Pvt | | |
| Fur to dy 8 days | | | | |
| Warwick Fraser T | 38 993 366 | Cpl | | |
| Fur extended 3 days | | | | |

**Absent Without Leave.** For all instances of men absent without leave, it is necessary to state the fact of AWOL and to indicate the hour of departure and the hour of return. Unauthorized delay in a change of station or failure to return at the expiration of leave or furlough will be reported. The remark will include the length of delay and whether or not it has been excused by the officer authorized to extend the absence. When excused, this time will count against leave or furlough time. When not excused the entry is AWOL. Men AWOL are carried on the rolls of the organization for a period of one month. A remark is then made that the individual is dropped from its rolls, and his service record and allied papers are sent forward to the Adjutant General.

Typical remarks are:

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Piper Lawrence F | 41 668 793 | Pvt | | |
| Dy to AWOL 0815 | | | | |
| Stanton Whitney | 38 007 892 | Pvt | | |
| AWOL to ar in qrs 1400 awaiting trial 61st AW | | | | |
| Brontaro Frank | 31 007 166 | Pvt | | |
| Fur to AWOL 0001 | | | | |
| Williams Arthur M | 32 829 343 | Cpl | 511 | |
| Asgd & jd from 99 Ord Co (ASF) Fort Tearn La 4 Aug 44 Race W MCO 123 par 12 SO 128 Hq 5 Ord Bn Fort Tearn La Unauthorized delay 3 days excused and charged to fur | | | | |
| Pedrick Thomas A | 36 428 282 | Pvt | | |
| AWOL since 8 Jul 44 dropped from rolls s/r & allied papers fwd | | | | |

**Desertion.** A man is a deserter only when convicted of desertion by a court martial. Therefore, remarks pertaining to desertion will only be pertinent to individuals convicted of desertion. The following information should be reported.

(1) If the man is in confinement, a statement to that effect should be made.

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(2) Statement indicating trial, conviction, court-martial order, and the date convicted.

(3) Disposition of the individual including confinement to duty, dishonorable discharge, whether or not execution is suspended, and the authority therefor should be indicated.

The following is the model remark:

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Johnson Albert F | 31 863 393 | Pvt | | |
| Conf to conviction as deserter GCMO 13 | | | | |
| Hq Fort West Ga 8 Oct 44 DD execution | | | | |
| suspended to US disciplinary bks Fort | | | | |
| Leavenworth Kans GCMO 18 | | | | |

**Confinement.** When men are placed in arrest (moral restraint) or confinement (physical restraint), a remark must be made to include:

(1) Statement that the individual is in arrest or confinement.

(2) The nature of the alleged offense and the place of confinement.

(3) The status of the man as to whether he is being held for trial, has been tried, dismissed from trial, and whether acquitted or convicted if tried.

(4) Return to duty, if applicable.

Men in confinement appear on the morning report of the organization to which they are assigned or attached unassigned, and are reported as absent in confinement. General prisoners are dropped from the rolls and reported on the guardhouse morning report. If an individual escapes, the officer of the day or prison officer must notify the man's commanding officer so that an appropriate entry may be made in the morning report.

A typical remark is:

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| White Peter T | 41 863 002 | Pvt | | |
| Atchd unasgd Ar in qrs to conf post | | | | |
| stockade awaiting trial charged murder | | | | |
| | | | | |

**Missing.** An individual may be carried as missing until it is established that he is deceased or until he is dropped from the rolls and his service record and allied papers are forwarded as prescribed by Army Regulations. The remark will include a statement that the individual concerned is missing, the circumstances surrounding his absence, and the disposition of the service record and allied papers. For example, see below:

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Herbert Edwin H (ORD) | 01 558 234 | 2d Lt | | |
| Missing since 3 Oct 44 on contact party | | | | |
| Records fwd | | | | |
| | | | | |

**Battle Casualties.** Injury, death, or missing, as a result of enemy action or while engaged in, going to, or returning from a combat mission, whether or not the direct result of enemy action, will be reported as a battle casualty. Remarks reporting battle casualties will include:

(1) Kind of casualty:

a. Killed in action.

b. Died of wounds received in action. (A wound is from an enemy missile.)

c. Died of injuries received in action. (Other than enemy missile)

d. Seriously wounded in action.

e. Seriously injured in action.

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f. Slightly wounded in action (requiring hospitalization)
g. Slightly injured in action (requiring hospitalization)
h. Missing in action presumed to be the result of enemy action.
i. Captured (only when it is definitely known that the individual was captured.)
j. Interned in a neutral country.
k. Seriously ill, gas casualty.

(2) Place of casualty.

(3) Specialist serial number of the job the individual was filling at the time of becoming a casualty.

(4) Whether or not the man is entitled to any additional pay, such as parachute, longevity, etc.

(5) Wounds or injuries not requiring hospitalization will be so entered.

(6) Whether or not soldier was in flying status.

The following are illustrative remarks:

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Evans John E | 32 007 863 | Sgt | | |
| Seriously wounded in action Rome Italy | | | | |
| SSN 511 dy to hosp | | | | |
| Stevens Henry R | 31 664 422 | Pvt | | |
| Killed in action in Caen France 18 yrs | | | | |
| longevity SSN 318 | | | | |

**Non-battle Casualties.** All casualties not listed above, including mental diseases, developing under battle conditions will be recorded as non-battle casualties. This applies also to training flights or missions. Remarks reporting non-battle casualties should include:

(1) Injury—diagnosis and date of injury.

(2) Missing—description of circumstances.

(3) Death.
a. Cause.
b. Whether or not in flying status.
c. Place of death.
d. Line of duty and whether investigation was required.
e. Pay status—additional pay as well as loss of pay if "nld 35-1440."

(4) SSN (Specification Serial Number of duty at time of becoming casualty).

Model remarks for non-battle casualties are:

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Tinsel Sam R | 31 862 222 | Pvt | | |
| Seriously injured fractured left arm | | | | |
| Oct 44 dy to hosp LD | | | | |
| Lloyd Harry N | 34 567 892 | Cpl | | |
| Died LD snake bite Trinidad no investigation | | | | |
| SSN 314 | | | | |

**Changes of Grade.** A record of all promotions and reductions will be made. It will include the old grade in the appropriate space provided, the new grade, the arm or service where necessary (at all times for officers, and for enlisted personnel when it is different than the reporting organization), the authority (headquarters, special orders number, and paragraph number), and for officers only, the date of rank.

The typical remarks for an officer and for an enlisted man are noted below:

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| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Mirts Arturo C (ORD) | 01 558 668 | 2d Lt | | |
| Promoted to 1st Lt AUS par 9 SO 11 WD date of rank 1 Aug 44 | | | | |
| Lang Joseph | 12 337 393 | Cpl | | |
| Promoted to Sgt par 7 SO 18 Hq 6 Ord Bn Fort Bin Mont | | | | |

**General or Limited Service (Officers only).** A remark is necessary to show any change of an officer from or to general or limited service. Example:

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Dorn Daryl (ORD) | 01 556 383 | Capt | | |
| Limited sv to general sv | | | | |

**Transfers and Details (Officers only).** Officers transferred or detailed to an arm or service will be reported by indicating the fact of transfer or detail, the arm or service to which detailed or transferred, and the authority, as follows:

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Estes Pedro (ORD) | 01 558 299 | 2d Lt | | |
| Detailed to CA par 11 SO 133 WD | | | | |

**Separations.** Individuals separated from the service via resignation, discharge, dropped from the rolls, dismissal, transferred to reserve, relieved from active duty, retirement, or death will be recorded on the morning report, and the remark should include the following:

(1) Statement of the kind of separation. (Resignation, discharge, etc.)

(2) Reason of separation (Discharge honorable, without honor, or dishonorable, whether for disability, to accept commission, inaptness etc. See AR 615-360 to 369 inclusive).

Typical remarks are:

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Jones Francis N | 36 004 562 | Cpl | | |
| Hosp to hon disch CDD | | | | |
| Lamont John | 32 006 745 | M Sgt | | |
| Hon disch to accept commission | | | | |

**Changes of Military Occupational Specialty.** A remark changing the MOS of an individual must show the old MOS in the block provided for this purpose and the new MOS must be stated on the remark line, as follows:

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Pierce Thomas F | 34 556 423 | Pvt | 521 | |
| MOS chgd to 408 | | | | |

**Changes of Principal Duty (Officers Only).** Whenever the principal duty of an officer is changed or he is assigned or is relieved from his principal

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duty, a remark must be made to include a statement of assignment, change or relief from the principal, or additional duty unless that additional duty involves command. See the remark below:

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Lawrence Frank I (ORD) | 01 558 654 | 1st Lt | | |
| Principal dy shop 0 to principal dy | | | | |
| Evacuation 0 (4801) | | | | |

**Changes of Commanding Officers.** All changes in command will be reflected in the morning report. If the person assuming command is attached, the remark must include the organizations or unit from which the individual is attached. The remark must show the change in command and whether or not the man has joined. A typical remark is:

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Pryor John H (ORD) | 01 438 621 | Maj | | |
| Atchd & jd from 100 Ord Co Ft Brie Ia | | | | |
| Assumed command (4502) | | | | |

## RECORDS OF EVENTS

**General.** The Record of Events section is the history of the organization, unit, or headquarters concerned. The words "RECORD OF EVENTS" will be typed in capital letters immediately following the last remark in the remarks section. Shown here are marches, reconnaissances, maneuvers, discipline, morale, changes of station, redesignation, activation, inactivation, demobilization, changes in T/O and E, actions and battle casualties showing number of officers and enlisted men involved, and anything affecting the service or efficiency of the organization as a whole.

Events will be entered as they occur; however, in the event that nothing unusual has happened, at least every ten days the entry "usual organizational duties" will be made. Whenever permanent or temporary changes of station, activation, inactivation, demobilization, redesignation, or changes in T/O and E are involved, the authority must be cited. Personnel of the Navy, Marines, or foreign powers attached or present for duty will be shown in this section on the date of their arrival or departure. A typical entry appears below.

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Jones John J | 31 863 456 | Cpl | | |
| Dy to AWOL 1100 | | | | |
| RECORD OF EVENTS | | | | |
| Lewis Carol N Lt (jg) USNR jd as observer this date Left Fort Tink Md 0800 on 12 mile march to Berins Park Md Arrived Berins Park 1200 Left Berins Park 1300 arrived Fort Tink Md 1700 Morale and physical condition excellent | | | | |

**Initial Morning Report.** When a unit is activated, the first day any personnel are actually assigned, attached unassigned, or attached to any organization, the initial morning report will be made. This will appear in the remarks and strength

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sections and in the Record of Events. In the Record of Events section there must be shown the date and authority for activation, the T/O and E, whether or not the organization was activated prior to that date, personnel actually joined, and a statement to the effect that this is the first morning report for the organization. For example:

| NAME | SERIAL NUMBER | GRADE | MOS. | CODE |
|---|---|---|---|---|
| Nichols Frank N | 38 663 426 | Pvt | | |
| Dy to fur 10 days | | | | |
| RECORD OF EVENTS | | | | |
| 19 Ord Co activated this date Fort Sam Houston Tex under T/O & E 9-7 dated March 1 1943 per ltr AG 320.2 subj: Activation of 19 Ord Co, personnel jd this date Initial M/R | | | | |

**Final Morning Report.** When a unit is disbanded or inactivated, the authority is entered in the morning report with the following statement, "No personnel assigned, attached unassigned, or attached from other organizations effective (hour)." When a unit is to be redesignated, the final morning report and the initial morning report of the redesignated unit will show the authority for the redesignation. Should an organization have no personnel assigned, attached unassigned, or attached from other organizations, no morning report need be submitted.

| |
|---|
| RECORD OF EVENTS |
| Redesignated 548 Ord Co Fort Sam Houston Tex per Sec VII GO 12 Hq Ft Sam Houston Tex |
| No personnel asgd, atchd unasgd, or atchd from other organizations effective 2400 this date, Final M/R |

## STRENGTH SECTION

The strength section of the morning report reflects the strength status for the organization as of 2400 of the morning report day. All changes in strength should be a result of an entry in the remarks section and should be substantiated by a remark. If more than one set of forms is used the strength figures will be entered only on the first set. Totals for warrant officers, flight officers, and nurses will be shown as totals in the blank spaces provided. Personnel from other branches of the service or from a foreign power will not be shown in the strength section but only in the Record of Events section.

Columns 2, 3, and 5 are used to show the basic status of the individuals. Columns 6 through 13 show the breakdown of persons present and absent. Where there is more than one grade on a line, for example master sergeant and first sergeant, the strength may be shown with a diagonal line, the figure on the left being the number of master sergeants and the figure on the right the number of first sergeants.

The present for duty column (Col. 6) will include all personnel present for duty and also those on special duty. Present not for duty will include individuals sick in quarters or arrest in quarters only. The other columns are self evident but it is well to check very carefully to insure that the total of columns 4 and 5 equal the total of columns 6 through 13.

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| (1) | ASGD (2) | ATCHD UNASGD (3) | TOTAL (4) | ATCHD FR.OTHER ORG'S (5) | PRESENT FOR DUTY (6) | PRESENT NOT FOR DUTY (7) | ABSENT T D D S (8) | ABSENT SK (9) | ABSENT CONF (10) | ABSENT LV FUR (11) | ABSENT AWOL (12) | MISS-ING (13) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GEN | | | | | | | | | | | | |
| COL | | | | | | | | | | | | |
| LT COL | | | | | | | | | | | | |
| MAJ | | | | | | | | | | | | |
| CAPT | 1 | | 1 | | 1 | | | | | | | |
| 1ST LT | 3 | | 3 | 1 | 3 | | 1 | | | | | |
| 2ND LT | 2 | | 2 | | 1 | 1 | | | | | | |
| TOT-AL | 6 | | 6 | 1 | 5 | 1 | 1 | | | | | |
| WO | 1 | | 1 | | | | | 1 | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| M SGT 1 SGT | 1/1 | | 1/1 | 1/0 | 1/1 | | | | | 1/0 | | |
| T SGT | 5 | | 5 | 1 | 6 | | | | | | | |
| S SGT TEC-3 | 8/12 | | 8/12 | | 4/10 | | 2/0 | 2/0 | | 0/2 | | |
| SGT TEC-4 | 4/35 | 3/0 | 7/35 | | 5/32 | 2/3 | | | | | | |
| CPL TEC-5 | 1/40 | | 1/40 | 6/2 | 4/39 | | 3/1 | | | | 0/2 | |
| PFC | 19 | | 19 | | 19 | | | | | | | |
| PVT | 35 | | 35 | 5 | 28 | | | 3 | 2 | 4 | 3 | |
| TOT-AL | 73/88 | 3/0 | 76/88 | 13/2 | 67/82 | 2/3 | 5/1 | 5/0 | 2 | 5/2 | 3/2 | |

## AUTHENTICATION

The morning report is signed by the commanding officer of the organization concerned or by any other officer designated by the commanding officer. If more than one set of forms is used, the report will be signed only on the first set of forms and the proper entry will be made as to the number of pages, for example: "PAGE 3 of 3 PAGES."

I CERTIFY THAT THIS MORNING REPORT IS CORRECT: PAGE 2 OF 3 PAGES

SIGNATURE: Rutherford B Knapp — NAME TYPED OR PRINTED: 1 RUTHERFORD B KNAPP

GRADE: CAPT — ARM OR SERVICE: 1 ORDNANCE

WD AGO FORM 1 — 8 NOVEMBER 1944 — W. D. COPY THRU MRU OR SCU — THIS FORM SUPERSEDES WD AGO FORM NO. 1, 1 MAY 1944 WHICH MAY BE USED UNTIL EXISTING STOCKS ARE EXHAUSTED

### Bibliography

WD Cir 415 '44
AR 345-400 (Morning Reports)
AR 850-150 (Authorized Abbreviations)

## DUTY ROSTER

With the inevitability of death and the regularity of taxes, extra duties of one kind or another become the lot of all members of the military service. These duties may vary from guard to fatigue and kitchen police which normally are performed only by privates and privates first class. The dividing line between these "extra" duties and the daily activities of an organization is

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often difficult to determine. If one thinks of "extra" duties as referring to those duties not performed by an entire organization at one time and not forming part of the normal daily routine, then he will have little trouble in deciding exactly what the term means.

Regardless of whether the duty to be assigned is that of fatigue or whether it be the detail of a lieutenant colonel as field officer of the day, the manner of assignment is set forth specifically in Army Regulation 345-25. The form which will be used to insure equitable distribution of these extra duties is known as the Duty Roster (W. D., A.G.O. Form No. 6); it is designed to serve as a record both of past performance of duty and future availability for duty.

In general, the underlying principle is that the individual who has been longest off a particular duty will be the one next detailed, provided always that he is available and able to perform. By the same token, performance of certain duties is limited to certain classes of personnel. Field officers of the day, for instance, will normally be drawn from the grades of lieutenant colonel and major; captains customarily are detailed as officers of the day; and lieutenants usually are assigned as officers of the guard.

| No. | Rank | Name | Nature of Duty and When Last Performed. | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Charge of Quarters and Room Orderly | Fatigue | Kitchen Police | | | |
| 1 | Cpl | Brown | 29 Jun, 2, 7, 10 | | | | | |
| 2 | | Jones | 27 Jun, 1, 4, 9 | | | | | |
| 3 | | Lyman | 30 Jun, 5, 8 | | | | | |
| 4 | | Matson | 28 Jun, 3, 6 | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| 1 | Pvt | Ashton | | | 18 Jun, 3, 8 | | | |
| 2 | | Buckles | | | 28 Jun, | | | |
| 3 | | Hillman | | | 19 Jun, 3, 9 | | | |
| 4 | | Ison | | | 27 Jun, 6, | | | |
| 5 | | Preston | | | 17 Jun, 1, 10 | | | |
| 6 | | Richards | | | 26 Jun, 7, | | | |
| 7 | | Samson | | | 24 Jun, 4, | | | |
| 8 | | Williams | | | 25 Jun, 5, | | | |

8—1586

The determination of whether or not it is advisable to excuse various individuals from the performance of certain duties rests with the organization commander. It is obvious that events may make it impractical for certain personnel to perform one or more of these types of duties. But no company commander should lose sight of the fact that he is absolutely responsible for the maintenance of the Duty Roster and the equitable assignment of duties. To excuse any member of the organization from the performance of guard, for instance, will make that duty just that much more onerous to the other members of the command.

Customarily, noncommissioned officers do not perform manual labor. It is perfectly permissible, however, to detail a noncommissioned officer to supervise a fatigue detail and give him credit accordingly for the performance of fatigue. Again, care must be taken that officers and noncommissioned officers are not given duties which tend to degrade their rank or bring discredit upon them personally.

The Duty Roster consists of a booklet to be used by the company or headquarters for one month. On the outside cover space is provided to insert the name of the organization and the month covered by the booklet. At the end of the month the roster is carried over to the roster for the next month in order that the assignment to duty may be a continuing process. Instances are occasionally uncovered by an Inspector General where company commanders keep rosters for particular months independently of those for the ensuing months and thus defeat the entire purpose of the roster.

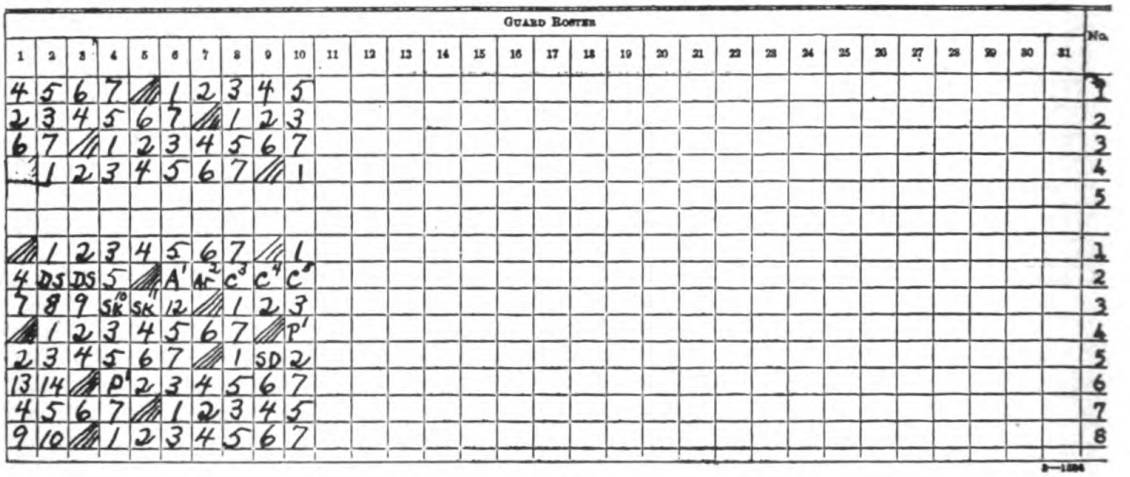
The Duty Roster is divided into two sections. The right hand page is known as the "Guard Roster" and is used to record past performance and future availability for all types of guard duty. The left hand page is known as the "Roster for other duties" section and is used to record all duties other than guard.

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Guard duty is considered an honor and a privilege; also it is regarded as more important and more essential than other extra duties. For these reasons, guard duty of whatever kind is always assigned before any other duty.

At the left of the "Roster for other duties" section is a column in which are listed the names of all personnel of an organization who are subject to the performance of duties reported in the duty roster, even though they may be excused from the performance of particular duties. Names are always listed alphabetically within grade, leaving several spaces between each grade both for purposes of separation and also to provide space to enter names of men who may become members of the company in the future or who may be promoted or demoted from one grade to another during the month. It is necessary to list only the last name except in those cases where there are two or more men with the same surname within any grade. In the "Grade" column the grade need be stated only once and then opposite the name of the man who heads the list of that particular grade.

At the extreme left of the "Roster for other duties" section is the first column headed "No." The extreme right hand column of the "Guard roster" page is also headed "No." Each of these columns should be filled out with a number corresponding in sequence to the alphabetical order of men on the guard roster of each grade. Begin the list of privates with number one. This is necessary because the names appear only on the left hand page and stapling is occasionally inaccurate, making it necessary to refer to the number on the right hand page to determine the line which corresponds to an individual's name on the left hand page.


GUARD ROSTER

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 5 | 6 | 7 | | 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | | | | | | | | | | | | 1 |
| 2 | 3 | 4 | 5 | 6 | 7 | | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | 2 |
| 6 | 7 | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | | | | | | | | | | | | | | | | | | | | 3 |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | 1 | | | | | | | | | | | | | | | | | | | | | | 4 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 5 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | 1 | | | | | | | | | | | | | | | | | | | | | | 1 |
| 4 | DS | DS | 5 | | A' | $4F^2$ | $C^3$ | $C^4$ | $C^5$ | | | | | | | | | | | | | | | | | | | | | | 2 |
| 7 | 8 | 9 | SK | SK | 12 | | 1 | 2 | 3 | | | | | | | | | | | | | | | | | | | | | | 3 |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | P' | | | | | | | | | | | | | | | | | | | | | | 4 |
| 2 | 3 | 4 | 5 | 6 | 7 | | 1 | SD | 2 | | | | | | | | | | | | | | | | | | | | | | 5 |
| 13 | 14 | | P' | 2 | 3 | 4 | 5 | 6 | 7 | | | | | | | | | | | | | | | | | | | | | | 6 |
| 4 | 5 | 6 | 7 | | 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | | | | | | | | | | | | 7 |
| 9 | 10 | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | | | | | | | | | | | | | | | | | | | | 8 |

The "Guard roster" page is divided into thirty-one columns, representing the days of the month. At the top of each column a number for each day of the month is placed; the first column is number one for the first of the month, the second number two for the second day, and so forth. An entry must be made each day in the column which corresponds to the day of the month and showing the status of every man on that day. To indicate that Cpl. Brown commenced the performance of guard duty on the fifth of the month, the lower right half of the square opposite his name under that date is shaded. On the next day, the numeral one will be placed in Cpl Brown's square, indicating that one day has elapsed since he last performed guard duty.

It is easy to see that assignment of guard duty means nothing more than detailing the man who has the highest number on the date in question. However, situations occur where a man is not in a duty status; that is, he is not available for the performance of guard. Certain symbols are used in the guard roster squares to indicate this.

Ordinarily the only abbreviations permitted for use on military forms and papers are those found in Army Regulation 850-150. Because the squares in the guard roster are small, other abbreviations are permitted, for use with this part

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of the Duty Roster only. The small numbers appearing to the right and just above each of the abbreviations for Guard Roster show the number of days since guard duty was last performed.

| *Status* | *AR 850-150* | *Guard Roster Only* |
|---|---|---|
| Absent without leave | AWOL | $A^4$ (4 days |
| Arrest | Ar | $Ar^4$ since last |
| Confinement | Conf | $C^4$ guard was |
| Sick (not in line of duty) | Sk | $Sk^4$ performed) |
| Pass | Pass | $P^4$ |
| Detached service | DS | DS |
| Special duty | SD | SD |
| Furlough | Fur | F |
| Sick (line of duty) | Sk | Sk |

It will be noted that each status is in one of three groups.

A distinction is made between a status which is incurred through misconduct and one which is entirely consistent with duty. A man who is not available for duty because of absence through some fault of his own is not allowed to accept any benefit from his own misconduct as far as the duty roster is concerned. The time during which he is absent through his own fault counts against him, and to show this, the symbol which indicates his status includes the number which has accrued on the day in question to the right of and just above the symbol which shows the reason why he is not available. Thus the symbol $A^1$ in Private Buckles' square on the sixth day of the month would indicate that Private Buckles was absent without leave and that it had been one day since he had last performed guard duty.

Each status shown in the third group of abbreviations is one of honor. The days that the man is absent and unavailable for duty are not to accrue against him. For this reason, no numbers are shown, merely the symbol being placed in the guard square opposite the man's name. When he returns, he is placed in exactly the same position as he was when he left, remembering, of course, that the day of return is a day of duty and counts as such. For instance, if Private Buckles had the number four in his guard column on the first of the month and left on two days detached service on the second, he would have entered opposite his name merely the abbreviation "D.S." on the second and third of the month. However, it would not be fair to start him off as though he had performed guard on the last day of his detached service so the number five will be entered in his guard square on the fourth of the month.

Sickness is considered to be *not in line of duty* for Duty Roster purposes when the man is absent from duty with a L.O.D. status of "No., AW 107" or "No., AR 35-1440." The days of absence count against the man in the two instances mentioned because *misconduct* is a *necessary* element.

Pass is a case by itself. A man on pass has done nothing wrong. A soldier on pass is not freed from building up time toward his next tour of guard duty. The reason is obscure, the days a man is on pass shall accrue against him in the "Guard roster," but the rule is definite. Each day during the period that Private Richards is on pass, therefore, the days since he last performed guard duty accrue against him.

When a guard detail is assigned, the first sergeant, under the supervision of the company commander, simply assigns those men who have been longest off guard. In the case of two men equally eligible, it is customary to detail the one whose name appears first on the roster.

Suppose that a new man is transferred into the organization. The Army Regulations provides that he will be placed at the foot of the roster the day after he joins. This means that if Cpl Matson joins the company on the first of the month, his name will be entered on the guard roster at the end of the list of the corporals and the number one will be entered in the square following his name on the second of the month.

No duty, except in emergencies, will be required of members of the old guard until at least four hours after they are relieved. It may be desirable, where cir-

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cumstances permit, to extend this time limitation even further. Guard is normally mounted on one day and relieved the next. The members of the guard are credited with performance on the day on which they go on guard, not on that day on which they come off.

"The Roster for other duties" section is very different from the "Guard roster" section. Instead of a series of columns representing the days of the month, there are six columns, each of which is used to record performance of one particular duty. The heading of the first column is "Charge of Quarters and Room Orderly." This column records the performance of two different duties only because no one individual will perform both. Charge of quarters, is performed by non-commissioned officers only, except under extraordinary circumstances; room orderly is a duty of privates and privates first class. The second column is headed "Fatigue" and the third "Kitchen Police." The last three columns without headings may be used for particular duties which are performed sufficiently often and are sufficiently different from fatigue to justify making them into a category of their own.

Performance of one of these "other duties" is recorded simply by placing the date opposite an individual's name in the column used for that duty.

The method of showing performance of these "other duties" is not on an accrual basis, as was guard duty, but involves nothing more than recording the date upon which the duty in question was last performed. However, one more step is necessary. The next time a person pulls a duty the previous date is lined out and the new one is entered.

At the beginning of each month the first sergeant must transfer to the new Duty Roster the last performance of each of these "other duties" by each man, just as he must carry forward to the column for the first of the new month in the "Guard Roster" the number entered opposite the man's name in the "Guard roster" on the last day of the preceding month, plus one.

It will always be necessary to assign guard duty first, then to assign the other duties, checking carefully to make sure that the man has not already been assigned to guard and that he is not on a status other than duty. As for the order in which the other duties should be assigned—that is determined by the commanding officer. It is perhaps best to assign the duties in the same order in which they appear on the Duty Roster; that is, charge of quarters and room orderly first, and so on. In the long run, however, the acid test is whether or not the duties are being assigned on a fair and equitable basis. Failing that, the purpose of the Duty Roster is defeated.

When the month covered by a roster has come to an end, it is necessary to retain the booklet. The Inspector General will examine it when he makes his annual inspection. After one year the roster may be disposed of.

### Bibliography

Army Regulation 35-1440—Loss of Pay During Absence Due to Disease Resulting from Misconduct
Army Regulation 345-25—Duty Roster
Army Regulation 345-415—Daily Sick Report
Article of War 107—Soldiers to Make Good Time Lost

## DAILY SICK REPORT

The Daily Sick Report (W.D., A.G.O. Form No. 5) is the record maintained by each organization of all sickness and injuries for which medical treatment is required. It is almost axiomatic that a record of this kind is the responsibility of the commanding officer of the organization to which it pertains.

When an officer or enlisted man is accepted for service in the Army, he becomes entitled to certain rights in return for his service. One of these rights is that to medical and dental care when required. In addition, the United States assumes the responsibility for those injuries or illnesses, incurred as the result of his military service, which result in partial or complete disability. That is, an individual may be entitled to a pension if at any time he becomes disabled because of his military service.

On the other hand, for improper conduct the Army exacts certain penalties. It is the duty of any soldier to maintain himself in such a way that he can best render

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ervice to the nation. For this reason, he is subject to loss of certain rights when ıe renders himself unable to perform service because of misconduct.

It will be seen at once that the question of pensions for disability and, conversely, he question of the loss of these rights and even of the imposition of additional ɔenalties is one which requires conscientious attention to the facts of the case and o the applicable regulations. To remember that upon his decision may depend the mmediate or future rights of the men under his command is to go a long way toward insuring that the commanding officer pay strict attention to the accuracy of he Daily Sick Report.

| ORGANIZATION OR DETACHMENT COMMANDER'S REPORT | | | | | | MEDICAL OFFICER'S REPORT | |
|---|---|---|---|---|---|---|---|
| DATE 1944 | LAST NAME—FIRST NAME—MIDDLE INITIAL | ARMY SERIAL NO. | GRADE | WHEN TAKEN SICK | IN LINE OF DUTY (Yes or No) | IN LINE OF DUTY (Yes or No) | DISPOSITION |
| 22 Jul | Low, John R. | 33079228 | Sgt | 22 Jul 44 | YES | YES | Dy |
| | Down, Boscomb B. | 28768429 | Pvt | 22 Jul 44 | No | No | Hosp |
| | Robert H. Rowe, Capt, Ord Dept, Comdg | | | | | Thomas J. Doc, Maj, MC | |
| 23 Jul | Down, Boscomb B. | 28768429 | Pvt | 23 Jul 44 | No | No | Hosp |
| | Johns, Samuel S. | 01548744 | 1st Lt | 23 Jul 44 | YES | YES | Sick in qrs |
| P.O. | Boggs, Roscoe M. | 38765428 | S Sgt | 23 Jul 44 | No, AR 35-1440 | No, AR 35-1440 | Hosp |
| | Saul, Herman N. | 35432876 | Pvt | 23 Jul 44 | YES | YES | Dy |
| | Robert H. Rowe, Capt, Ord Dept, Comdg | | | | | Thomas J. Doc, Maj, MC | |
| 24 Jul | Down, Boscomb B. | 28768429 | Pvt | 22 Jul 44 | No | No | Dy |
| | Johns, Samuel S. | 01548744 | 1st Lt | 23 Jul 44 | YES | YES | Dy |
| | Boggs, Roscoe M. | 38765428 | S Sgt | 23 Jul 44 | No, AR 35-1440 | No, AR 35-1440 | Hosp |
| | Robert H. Rowe, Capt, Ord Dept, Comdg | | | | | Thomas J. Doc, Maj, MC | |
| 25 Jul | Boggs, Roscoe M. | 38765428 | S Sgt | 23 Jul 44 | No, AR 35-1440 | No, AR 35-1440 | Hosp |

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The Daily Sick Report itself is a booklet containing pages, each of which is similar to the other. One booklet is used until completed, regardless of the period of time required. On the outside cover, spaces are provided for insertion of the name of the organization and the inclusive dates covered by the entries in the book. When the Daily Sick Report is completed, it is filed among the organization records for eight years; at the end of that period, instructions are requested from the Adjutant General as to its disposition. As in all records of this type, entries are made in ink and erasures are prohibited.

The first names entered are those of men who were ordered placed in hospital or quarters on the preceding day. After these names have been entered, the names of officers and enlisted men of the organization reporting for medical treatment are entered, the line of duty status is determined by the commanding officer wherever possible, and the part of the report which pertains to the organization or detachment is signed by the commanding officer on the next unused line.

It now becomes the duty of the medical officer to complete his section of the Daily Sick Report page. In a sense, then, the Daily Sick Report is a divided responsibility; but this is more apparent than real. Actually, although certain entries are made by the medical officer, it is still the responsibility of the custodian, the organization commander, to see that those entries are in fact placed in the report.

After the medical officer has completed the entries required in his section of the report, the men who are to be returned to a duty status and the men who are to remain in quarters are marched back to the organization. The men who are to be placed in the hospital remain in charge of Medical Department personnel. When the Daily Sick Report has been signed by the medical officer it is returned to the organization.

No soldier who is in need of medical treatment should be denied the right to go to the hospital when his condition warrants, regardless of the time of day or night. By the same token, in an emergency, treatment will be given at once and entries made in the Daily Sick Report when time permits.

The Daily Sick Report form is divided into two sections. The first is headed

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"Organization or Detachment Commander's Report" and the second, "Medical Officer's Report."

The face of the form is ruled into horizontal lines on which are to be entered the names of individuals reporting for sick call. The first vertical column is headed "Date 19." After completing the last two digits of the year, it is necessary to enter the month and the date on the first of the horizontal lines to be used on the day in question. In the second column, headed "Last Name-First Name-Middle Initial," are printed the names of the men who were marked "Hospital" or "Sick in quarters" the day before, followed by the names of the men reporting on sick call on the date in question. The man's surname appears first, but it should be remembered that War Department records no longer require an entry of "NMI" in the case of those men who do not have middle names.

The serial number of the officer or enlisted man is entered in the column headed "Army Serial No." and his grade in the "Grade" column. The "When Taken Sick" column offers a pitfall to the uninitiated. An inexperienced first sergeant or company commander is tempted to estimate the date of the appearance of the initial symptoms of the disease or injury from which the man is suffering. Occasionally, this may be possible. In the usual case, however, the only practicable rule is to enter the date upon which the man first obtained Army medical treatment for this disease or injury. Most often, of course, this will involve nothing more difficult than a reference to a preceding page of the Daily Sick Report form. Sometimes, however, doubt will arise which should be resolved by the medical officer, provided the question is a medical one. For instance, it will often be impossible for the company commander to determine the actual date a man was taken sick if he is suffering from what may be a recurrence of an injury sustained years before.

The last column in the "Organization or Detachment Commander's Report" is headed "In Line of Duty (Yes or No)." In most cases it is the duty of the organization commander to enter his decision as to the line of duty status of the disease or injury of the man. Where it is impossible to determine the line of duty and in certain other cases where provision is made by regulation for the appointment of an investigating officer or board, it is obvious that the responsibility for making this decision is no longer that of the immediate commander.

Separated by a double line from the columns just discussed is the "Medical Officer's Report." The first column in that report is a duplication of the "In Line of Duty (Yes or No)" column of the organization commander. Since in most cases the organization commander's opinion as to the line of duty status of the illness will be dependent upon the medical aspect of the case, space is allowed for the concurrence or disagreement of the medical officer. Once again, however, it must be remembered that cases arise where applicable regulations require the final decision as to line of duty status to be made by a higher commander on the basis of a recommendation of a board of officers or an investigating officer.

Suppose that the organization commander and the medical officer fail to agree. It is obvious that provision must be made for appeal to an authority paramount to both which can issue a final decision. Short of this extraordinary procedure, it is the duty of the immediate commander and the medical officer to make a joint decision, to reconcile their opinions and arrive at the same conclusion. At any rate, the line of duty columns must ultimately be reconciled. Since it is a fundamental rule that no line or space be left blank in the Daily Sick Report, it is obvious that some entry must be made, even though it is apparent that the responsibility for a decision in a particular case has been assumed by a higher authority. To indicate that the line of duty status is undetermined, Army Regulation 345-415, requires that a question mark be placed in the applicable space of the line of duty column.

The last column, also in that part of the report which is the province of the medical officer rather than of the organization commander, is headed "Disposition." It is here that entry is made of the action taken by the medical authorities with regard to treatment or restoration to duty of the patient. The most common dispositions, authorized for use in the Sick Report, are: "Hospital," "Sick in quarters" and "Duty." Dispositions such as "Part duty" or "Light duty" are not authorized, descriptive as those phrases are. Of course, a company commander's

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own good judgment will indicate that a soldier returned to duty after an extended period of hospitalization cannot always be expected to perform every duty required of the rest of the men in the company.

If an individual should be transferred from the station hospital to the station hospital of another post, or to a regional hospital or a general hospital for further observation and treatment, the medical officer will, on the date of the change, enter "Transferred to ....(Name).... hospital ....(Place).... for observation and treatment." After this entry has been made, the name of the individual will be dropped from the Sick Report and will not appear again unless the soldier is in need of further medical treatment upon his return.

Occasionally, an organization will be transferred while one or several of its men are sick in the hospital. If it is necessary that the man remain behind, the Sick Report of the organization will have the notation made in the "Disposition" column "Retained in station hospital ....(place).... for observation and treatment only."

If an individual should be transferred from one organization to another while hospitalized, the medical officer will on the date of the transfer enter "Transferred to (designation of new organization)." The old organization will then drop the individual from its sick book and he will be picked up in the sick book of his new organization.

Although those dispositions already mentioned are usually the only ones authorized, other administrative entries are not thereby precluded. For instance, it is required that the appointing authority of an investigating officer, in those cases where an investigation is required or desirable, enter the final decision as to line of duty status in the "Disposition" column. In this regard, it will be remembered that investigating officers and investigating boards are only advisory in nature. That is, approval or disapproval of their reports must be rendered by the officer who appoints them. In this respect, it is always his action, never theirs.

Likewise, entries are permissible in the "Disposition" column showing that a man whose disposition was hospital or sick in quarters absented himself without leave, died or was discharged from the Army. It is obvious that these are administrative entries necessary to show exactly what occurred and to explain a disposition which would otherwise be inaccurate.

After the medical officer has made the necessary entries in his portion of the report, he signs on the same line as the organization commander, but within his own section of the page. The Daily Sick Report is completed for the day, provided always that no one becomes ill unexpectedly later in the day. Should that occur, the date is repeated in the date column, the name of the individual or individuals requiring emergency treatment is entered, and the report completed and signed in exactly the same way as it was at the morning sick call—with one important exception. Since the names of those men marked "Hospital" or "Sick in quarters" the day before have already been carried forward to the current day, it is not necessary to enter their names again. It is, of course, necessary for the commanding officer and the medical officer to sign on the next unused line exactly as they did in the morning.

The most difficult questions in connection with the administration of the Daily Sick Report arise in connection with the line of duty status of an illness or injury. Unfortunately, the questions which arise often depend upon legal decisions by The Judge Advocate General. The War Department has simplified the decisions to be made by the two officers immediately responsible for entries in the report by providing for the appointment of an investigating officer in those cases most likely to be difficult of decision.

The decision as to line of duty status rests with the commanding officer and the surgeon in the following cases:

1. Battle casualties (as defined in Army Regulation 40-1080).
2. Injuries received while operating or riding in government vehicles or airplanes.
3. Injuries received while on maneuvers, during authorized athletic exercises, or otherwise while engaged in the execution of military duty.

Injuries incurred under the circumstances detailed above will be considered to be in line of duty provided misconduct or gross negligence is not the actual cause. Where the organization commander feels that a situation has arisen in

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which legal advice is necessary, he should refer the case to the next higher commander who will take appropriate action toward appointing an investigating officer or securing the opinion of a claims officer or staff judge-advocate. In the vast majority of cases, no difficulty will arise to prevent the immediate commander from making the decision.

The commanding officer of the station or command will appoint an officer (of field grade, if practicable) to investigate the circumstances of the injury or disease and make an appropriate report on the basis of which the appointing authority will render a decision in every case which, in the opinion of the surgeon, is likely to result in a partial or complete permanent physical disability of the patient and eventually be made the basis of a claim against the government, and which was incurred:

a. While on pass, leave or furlough; or

b. Under circumstances other than those in which the decision is to be made by the commanding officer and surgeon;

c. As a result of misconduct or gross negligence.

There are seven authorized entries in the "In Line of Duty (Yes or No)" columns of the Daily Sick Report:

1. Yes
2. No
3. No, EPTE
4. No, EPTI
5. No, AW 107
6. No, AR 35-1440
7. ?

The most usual entry, of course, is "Yes". It means that the illness or injury of the soldier was the natural result of his military service, or of his usual activities incident to every day life not due to fault, misconduct or negligence on his part but not inconsistent with his status as a soldier. The basic presumption is always in favor of the soldier. Lacking evidence to the contrary, a disease or injury of a person in the military service will be presumed to have been service-connected and, therefore, in line of duty. This entry deprives the individual of no right or benefit to which he is otherwise entitled. A soldier with a venereal disease who complies with regulations by reporting for treatment is considered to be in line of duty.

'No', by itself, indicates that the sickness is not in line of duty but is unaccompanied by aggravating circumstances. In other words, although it is not the direct result of the soldier's military service, the proximate cause of the illness was not the misconduct or gross negligence of the man. Where a disease or injury was contracted while the soldier was absent without leave, the line of duty entry is 'No,' provided misconduct was not the proximate cause. If the disease or injury occurred as the result of a private avocation or business not of a class specifically authorized and encouraged by the War Department, the individual's line of duty status is 'No', always provided misconduct was not the direct cause. The same is true if the illness resulted from activities of the individual which were unconnected with the service. A soldier with a venereal disease who fails to comply with regulations or in any way conceals the fact of venereal disease will receive an LD status of 'No' provided the individual will not be hospitalized for more than one day.

It is well to remember again that, in almost all of these cases, an investigating officer will be appointed on request of the surgeon. The entry 'No', whether it stands by itself or is used in conjunction with some other abbreviation or symbol, invariably connotes a loss of pension rights, provided future disability results from this disease or injury.

The line of duty status of 'No, EPTE' is indicated when the disease or injury existed prior to the soldier's enlistment and was not aggravated by the service; while the line of duty status of 'No, EPTI' is indicated when the disease or injury existed prior to the soldier's induction and was not aggravated by the service. The presumption to be applied is that every individual in the Army is taken to have been in sound condition when examined, accepted, and enrolled for service except as to defects noted at the time of the examination, or where clear and unmistakable evidence that the injury or disease existed prior to the individuals active service.

In order to understand the entry of 'No, AW 107,' it is necessary to note the pertinent phrases of the 107th Article of War which provides: "Every

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soldier who . . . through the intemperate use of drugs or alcoholic liquor, or through disease or injury the result of his own misconduct, renders himself unable for more than one day to perform duty, shall be liable to serve, after his return to a full status, for such period as shall, with the time he may have served prior to such . . . inability to perform duty, amount to the full term of that part of his enlistment period which he is required to serve with his organization . . .' Notice especially three phases of this Article. First, the individual must be absent from duty for more than one day. Second, the proximate cause of his absence must have been his own misconduct. And third, it applies equally to diseases and injurys. Where his own misconduct was a contributing cause only, and not the direct or moving cause, the enlisted man's line of duty status cannot be 'No, AW 107.' The legal consequences of this entry are obvious; loss of pension rights is implied by the word 'No', while the 'AW 107' indicates that time is to be made good. A soldier with a venereal disease who fails to comply with regulations by not reporting for treatment or in any way conceals the fact of venereal disease will receive an LD status of 'No, AW 107' provided the individual will be hospitalized for more than one day.

The entry 'No, AR 35-1440' applies to two cases only, and both of them must be diseases. Where a person in the military service (and no distinction is made between officers and enlisted men in this regard) is absent from his normal military duties for more than one day because of a disease incurred through his own misconduct, he forfeits pay (not allowances) for such period, provided the disease results from one of the following: a disease resulting from his intemperate use of alcoholic liquor, or a disease resulting from narcotic drugs. Since misconduct is an essential element of this situation, two facts are obvious. First, all the necessary elements of Article of War 107 are present so the man will always lose time under that article so long as all the requirements of AR 35-1440 are met. Second, it is entirely possible for a disease which is one of those to which Army Regulation 35-1440 appears to apply, to have been acquired in line of duty and through no fault of the soldier. In such case, of course, the correct entry is "Yes." It is to be remembered that the uncorroborated statement of the individual as to the circumstances under which the disease was acquired is not to be accepted without more cogent proof of lack of misconduct.

Public Law 439, effective 7 Oct 44, permits continuation of pay to personnel while sick not in line of duty due to venereal disease unless such injury or disease was the result of willful misconduct. Venereal disease shall not be presumed to de due to willful misconduct if the person in service complies with the Army or Navy regulations requiring him to report and receive treatment for such disease. This law does not protect persons who contract venereal disease who avoid duty by deserting the service, or by absenting themselves without leave materially interfering with the performance of military duties or who were confined under sentence of court martial or civil court. Pension shall not be payable for any disability due to the claimant's own willful misconduct or vicious habits.

The last authorized entry which may be made in regard to line of duty status is used when the line of duty status is undetermined; it is never a final entry and may be used only so long as the final decision is pending. The interrogation point is used most frequently pending action on the report of an officer appointed to investigate the case. Since all corrections must be lined out by the officer responsible for the original entry and initialed immediately above the correction, the correct words are entered and the question mark lined out and initialed when the final line of duty determination is made.

A soldier who is kept in hospital or quarters with a disease which falls under the provisions of Army Regulation 35-1440 will receive no pay unless the case comes within the protection of Public Law 439, even though his allowances continue to accrue. After he has been carried "No, AR 35-1440" for more than one month, he is paid a gratuity of five dollars per month for the original month and all months thereafter. This is in no sense pay for service performed, but is simply for the purpose of providing minimum personal essentials during the period of treatment.

Whenever an entry of either "No, AW 107" or "No, AR 35-1440" is made, the man in question must be informed of that fact by the organization or detachment commander and given an opportunity to appear before the commanding officer

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and present any evidence and make any statements which he desires to be considered in connection with his appeal. If the line of duty status of an individual is undetermined but a possibility exists that the ultimate finding will be "No, AR 35-1440," the individual will not be paid during the period in which the decision is pending.

Whenever payment of the individual is deferred pending this decision and whenever his line of duty has been established to be "No, AR 35-1440," the Daily Sick Report must be submitted to the personnel officer or other custodian of the service records and pay rolls. After making all necessary entries in the records concerned, this officer will place his initials in the "Date" column opposite the soldier's name on the date on which the first entry of "No, AR 35-1440" appeared. When the individual returns to duty again, the same procedure must be followed; the custodian of the personnel records of the organization again affixes his initials in the "Date" column opposite the man's name on the date upon which he returned to duty. Since no penalty attaches for absence from duty for a period not exceeding one day, and since a line of duty status which is undetermined may result in a finding of a line of duty status other than "No, AR 35-1440," it is the responsibility of the personnel officer or custodian of the records to make necessary corrections if action was taken to cause the man to forfeit pay. Ordinarily, of course, no action whatever is required by the personnel officer if the absence from duty does not exceed one day, since AR 35-1440 does not apply.

Army Regulations make no similar requirement in the case of "No, AW 107." It is obvious, however, that an enlisted man who is absent from duty because of sickness the result of his own misconduct must have proper notation made in his service record provided he is absent more than one day. It is equally obvious that some such procedure as that used in the case of "No, AR 35-1440" to insure that these entries in the service record are made may be desirable in the case of "No, AW 107." Regardless of the way in which the situation is handled, it is the responsibility of the organization or detachment commander to insure that proper entries are made in the service record.

Whenever an investigating officer is appointed to recommend the proper action to be taken by the commanding officer of the station or similar command in regard to line of duty, the appointing officer must record his decision in the "Disposition" column of the Daily Sick Report opposite the name of the man whose line of duty status is being determined. This entry is made opposite the most recent appearance of the soldier's name in the report and must be followed by the signature of the officer who is charged with making the decision. From this final determination, there is no appeal, saving always that the Judge Advocate General may make an adverse interpretation of the legal principles upon which a particular decision is made.

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## UNIT FUNDS

The unit fund is more than actual currency or the deposits to the credit of the organization. It includes the tangible assets of the company, which are also the property of the enlisted men of the organization. The sources of this property are many and varied. Gifts by philanthropic organizations and civilians are subject to accountability the same as sums received in cash from the post trust fund by the company commander.

The custodian of the unit fund is the company commander. Army Regulation 210-50 provides for funds of all types. It provides that the officer in command of the unit to which a fund pertains shall be its custodian and he is further charged with the administration of that fund. He will be responsible for the propriety of

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all expenditures from the fund. The custodian must maintain the necessary books and records to reflect the current status of the fund and to provide monthly information with regard to receipts and expenditures pertaining thereto.

A fundamental rule to be remembered by every officer who deals with the funds of an organization is that he is in the position of a trustee. He is never, although he may be tempted to think so because of his position as custodian, the absolute master of the property. Every act of his must be for the ultimate benefit of *all* the enlisted members of the organization. Every act must be within the purview of Army Regulation 210-50, which governs the accounting, expenditure, and disposition of unit funds of all types.

Since the fund is the property of the organization, it must be held in the organization's name. Its designation will be compounded of the official name of the unit and the words "Unit Fund." For instance, the fund of the 86th Ordnance Company will be designated "Unit Fund, 86th Ordnance Company". The custodian acts always in the name of the fund.

Another pitfall should be mentioned. It is a fundamental principle of the duties of trusteeship that trust funds must never be co-mingled with the personal funds of the trustee, or with any other funds for which he is responsible. This is true even though his care in the keeping of accounts and his honesty in the disposition of the money be of the highest.

Generally speaking, the unit fund is composed of three basic types of property: money, securities, and the tangible property of the organization, such as the day room furniture or the athletic equipment belonging to the company. Different procedures must be followed in accounting for each of these types of property.

The sources of each of these forms of property are fairly obvious. Money may be received as a gift from interested civilians, or from members of the organization. Money is received from the post trust fund. In time of peace (and, in some few organizations, in time of war also), many organizations subsist on the garrison ration which is in the form of a money credit to the organization. It is often possible for the mess to operate at a cost much less than the amount of the credit issued. When this is true, the fund of the organization receives the difference, which is carried as "Ration Savings".

The chief source of funds is the post trust fund. The post trust fund consists of cash receipts in the form of dividends or income from all revenue-producing or welfare activities on the post, such as the Post Exchange. Distribution is made periodically of a part of the post trust fund to unit funds. This distribution is based on enlisted strength in multiples of five cents, not in excess of fifty cents per man. No payment, however, may increase any unit fund beyond the currently imposed limitation. At the time of this writing, the maximum on hand in any unit fund may not exceed three dollars per man. If additional amounts remain in the post trust fund, further sums may be distributed within authorized limits. Money may also be received from the sale of property which belongs to the fund. Interest will accrue on the interest-bearing securities owned by the company and on bank deposits, provided, of course, they are kept in a savings account.

Voluntary contributions of money or property may be freely accepted whether or not they are limited as to specific purposes or uses. Such contributions to any organization are subject to approval by the commander of that organization which is commanded by, or is the appropriate command of, a general officer commanding that organization. Day room furniture and athletic equipment are frequently donated to unit funds.

Company commanders should be particularly careful that contributions by enlisted men are entirely voluntary. There are sufficient prohibitions against the practice of requiring or "encouraging" contributions by enlisted men, but since violations of this rule are all too common, it is well to mention it again.

Furniture, athletic equipment, games, books, magazines, and many other items are properly part of the unit fund if they were donated to or purchased from the fund. With the exception of "expendable" property such as newspapers, these items must be picked up and accounted for until such time as they become worn out, are sold, or otherwise rendered unserviceable, at which time they must be dropped from accountability by proper action. See AR 210-50 for instructions,

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Securities of certain types are properly subjects of the unit fund. Unit funds may purchase registered United States Government bonds, notes, or certificates of indebtedness of types to be specified from time to time by the Board of Directors of the Army Central Welfare Fund. Although many organizations own bonds, the desirability of such purchases is open to question. In the first place, the unit fund is intended to be spent, not saved for the possible benefit of the men who will make up the company at some hypothetical time in the future. On the other hand, the shortage of consumer goods which has made rationing necessary and the danger of unrestricted purchases of luxury items require that care and common sense be exercised by custodians of unit funds. Many higher commanders have placed limitations upon the authority of company commanders to make purchases from unit fund money. The question of the desirability of purchasing securities depends to a large extent upon local rules, but in the long run it tends to deny the full benefits of the fund to the men who are intended to be benefited by it, *i.e.*, those men who make up the organization at the present time.

Unit fund money should be deposited in a bank as soon as received. It is never desirable to have fund money in the form of cash in the possession of the custodian, except where a petty cash fund is permitted. Indeed, many commands have limited the amount of cash which may be kept on hand by the organization commander at any time. Fund money should be deposited in national banks protected by the Federal Deposit Insurance Corporation. In the event that the amount of the account exceeds the amount protected by insurance, the surplus should be deposited in another bank under similar limitations or deposited in an account protected by adequate collateral pledged by the bank to secure the safety of such excess in accordance with War Department directives. Failing this, the surplus may be invested in Government securities as already described. Where no national bank is available, deposits may be made in a State bank, preferably one which is a member of the Federal Deposit Insurance Corporation. Payments of all amounts due from the fund will ordinarily be made by check.

The basic purpose of the fund is to supplement the activities of the supply services in contributing to the comfort of and the mental and physical improvement of the enlisted men who are currently members of the organization. It must be spent solely for their benefit. The authorized objects of the fund, within these limits, are numerous. In general, expenditures should be made only for property which regulations permit the organization to retain in the event of transfer. Equipment which must be left behind when the organization moves is properly the province of the central post fund.

There are several restrictions on disbursements from the fund, Cash, securities, and other property of the fund will never be distributed to indviduals. Individual benefits, in any form, may not be made. The reason is obvious: the fund is the property of all the men of the organization and must be used for the benefit of all.

Money is never permitted to be loaned even though the reason for the loan is excellent. Contributions and donations to individuals or agencies not under the control of the War Department are prohibited.

There are many authorized activities, but the touchstone is the welfare of the men of the organization. Prizes may be purchased from the fund and awarded to those enlisted men who distinguish themselves in markmanship or some other military pursuit. There is no question of an individual benefit because all the enlisted men of the organization are equally eligible to win and the net result is the improvement of the military standing of the organization. Labor-saving devices may be purchased to the extent that funds otherwise appropriated by the Government for this purpose are not available. Cleaning and preserving materials may be procured for use on fund-owned property. In the event that money is spent for labor-saving devices customarily supplied by the supply services, a certificate that they are not available for issue should be secured by the custodian. In all cases of doubt, of course, it is advisable to request advice from the next higher commander or the post fiscal officer. In the case of cleaning and preserving materials, it is required that the voucher be accompanied by a certificate stating that the materials are to be used on fund-owned property only.

In addition to the more common expenditures such as books and magazines for the day room, prophylactics, and athletic equipment, etc., money may also be

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spent for entertainment and food for parties. But local regulations will govern these expenditures and limit them depending upon immediate shortages and requirements.

No obligations should be incurred which cannot be met within the current month unless permission to do so is obtained in advance from higher headquarters. Payments must be made promptly and advantage must be taken of all discounts.

Payments for services performed as a military duty are strictly prohibited, except as specifically authorized by regulations. Since the exceptions do not apply to the normal Ordnance company, the company commander will be safe in assuming that he has no authority to provide extra remuneration to personnel of the company mess.

**The Company Council.** The company council consists of not less than three and not more than five commissioned officers who are present for duty with the company. If less than three officers are present, the council shall consist of such lesser number as are present for duty.

The chief duty of the council is to advise and assist the custodian in the performance of his duties. It is actually a policy making body, but it must also inspect and approve the records of the custodian. The council must insure that expenditures made are within the purposes of the fund, that revenues are received and accounted for, and that the fund is expended for the welfare of the organization as a whole.

The company commander is the president of the council and as such calls meetings whenever he deems it desirable or whenever a member of the council requests. The council must meet promptly after the accounts for the month are closed to audit the fund account and to make recommendations for future policy and expenditures.

Army Regulation 210-50 requires that a record of the proceedings of the council be kept. Copies of the most recent financial statements of the fund, properly certified, will be included. The record of the proceedings of the council will be signed by the president. The signature of the recorder of the council thereto is desirable as well.

Disagreements between the members of the council and commanding officers will be decided by the senior commanding officer of the appropriate largest independent troop unit of Army Ground Forces, Army Air Forces, or Army Service Forces at the installation. In addition, unit funds at War Department installations will be audited quarterly by a disinterested commissioned officer designated by the commanding officer of the installation. Of course, unit funds are subject to the annual general inspection by the Inspector General.

**The Council Book.** Army Regulation 210-50 does not require that Company Council Book (W.D., Q.M.C., Form No. 15) be used, but it is required by TM 14-708. In the absence of specific directives, however, it will be preferable to use this method of accounting for fund property.

The Council Book is divided into two sections, one of which deals with the tangible property of the organization and the other with receipts and disbursements from the cash fund. Included in this latter section are certificate pages which contain blank certificates to be filled in by the custodian at the monthly closing of accounts, by the council at its monthly inspection, and by the post fiscal officer on the occasion of his quarterly audit. These same certificates are used whenever a change of custodians makes an additional inspection necessary.

On the outside cover of the council book, spaces are provided in which the name of the fund is to be entered. At the top of each page additional space is allowed for the same purpose.

The pages in the beginning of the book, used to record the tangible property of the fund, are ruled into horizontal and vertical columns with appropriate headings. The first column is headed "When Purchased" and is used to record the day, month and year that the property was purchased or donated to the organization.

In the second column, under the heading "Articles", the type and number of the articles are entered. A column is also provided to record the price of the property acquired. In the last column, headed "Disposition", is entered the ulti-

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mate disposition of the property, that is, whether the property has been worn out through fair wear and tear or whether it has been sold.

Care must be taken in dropping property from accountability. It is not enough for the custodian to dispose of the property and record the disposition in the Council Book; additional steps are necessary. All property sold must be verified by a voucher supporting the transaction. The entry on the property page may be lined out.

Property worn out through fair wear and tear may be dropped from the Council Book by an entry in the disposition column. Suppose, however, that only part of property acquired at one time is worn out or sold. For instance five of ten baseballs which were purchased some time ago may have become unserviceable. In that event, it is necessary merely to indicate the number sold or worn out in the "Disposition" column together with the date.

When the available property pages in the council book are filled and it becomes necessary to open a new volume, that property which is still on hand and has not yet been dropped at the time the new volume is opened will be picked up in the new book under the original date. The new council book should be designated "Volume II" and the accounts continue in the same manner as before.

The second section of the council book contains the pages used to record receipts and expenditures from the fund. One of these pages is used to record all receipts and expenditures during the month unless the volume of fund transactions makes it necessary to use two or more pages. On the back of each of these pages, alternating with them, are certificates which are completed monthly and upon change of custodians.

On the receipts and expenditures page, the custodian enters a brief description of each receipt of money due the fund and of each expenditure from the fund account, followed by the amount involved. All unit fund money falls into one of two categories. These two classifications are Ration Savings and Other Funds. Actually, Ration Savings are no longer permitted for organizations subsisted on the field ration, so in most cases this column is no longer used. It is enough to say that Ration Savings are funds derived chiefly from profits under the garrison ration, which is the ration in effect in most organizations in time of peace but in only a few companies during war.

In all but a few cases, then, all money pertaining to the fund is considered to be Other Funds and is carried in that column. At the end of the month, the accounts are balanced and the balance carried forward to the next similar page. It should be noted that the custodian is obligated to make entry of all transactions as soon as possible after they occur.

On the reverse of the page provided for receipts and expenditure in the Council Book are three certificates. The first is designed to be completed by the custodian, showing the amount and location of the cash, bank deposits, and securities which are the property of the fund. This certificate should be completed promptly after the accounts for the month are closed. The certificate is self-explanatory and requires no discussion.

Not later than the fifteenth of each month, local regulations may be even more exacting, the custodian will prepare a Monthly Financial Statement of the account in addition to the certificate mentioned in the preceding paragraph. It will show the exact status of the fund as of the last day of the preceding month. The form to be used will vary with different commands, but the information which must be included is clearly set forth in Technical Manual 14-708. The report must set forth the exact amounts of cash and securities in the fund, the total liabilities, the net working capital, the strength of the organization to which the fund pertains, and the average amount of working capital per unit of strength. This report must be completed in duplicate and forwarded to the custodian of the post trust fund. The net result, of course, will be the standardization of unit fund accounting within large installations.

After the statement has been completed and the other records of the fund brought up to date, the council meets and verifies the statement of the fund as contained in the custodian's certificate. When the council is satisfied that the fund is being properly administered, that the other records of the fund are

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properly reconciled, and after future policy has been determined, the second certificate is completed certifying that the records of the custodian have been submitted to the council and verified.

The third certificate is completed quarterly by the commissioned officer detailed to make the quarterly inspection of funds. He certifies that the fund has been properly administered during the period covered by the audit. He will inspect certificates, vouchers, check books, and bank statements and the other records of the fund.

Normally, then, the first two certificates are completed monthly and the third quarterly. If the custodian of the fund should be transferred, however, it is necessary to proceed in exactly the same manner as is customarily done at the end of the month. This is true even though the transfer should take place shortly after the accounts have been closed for the month.

**Other Records.** Although the Council Book is the primary record maintained by the custodian, he must make use of other records as well. Since all expenditures should be made by check whenever possible, the check book forms an integral part of the fund records. It should reflect accurately the exact financial status of the fund insofar as the particular bank account goes. It is desirable to obtain a large check book with space on the stub of each to describe the nature of the expenditure. This does not, however, take the place of the voucher file.

All bank statements pertaining to the fund must be reconciled with the check book balance by deducting from the bank statement balance those checks which have been drawn on the account but have not yet been reported as paid or cleared by the bank. The method of showing this reconciliation varies, but each check not reported on the statement should be entered by number, amount, and date, and the total of such outstanding checks should be deducted from the statement balance. The statement should then be fastened securely into the check book or the council book, according to local practice. Cancelled checks should be fastened to the stubs to which they had originally been attached. Duplicate deposit slips should be filed in the voucher file.

The voucher file has been mentioned already. A voucher is nothing more than evidence of the authenticity of the transaction. Vouchers should be prepared locally on standard 8 by 10½ inch paper and the receipted bill attached to the voucher. If no supporting papers are available, a detailed, descriptive statement of the transaction should be entered, containing the signature of all parties to the transaction, where that is at all possible. The council must determine the sufficiency of the statement to act in lieu of the usual voucher and should indorse its approval on the face of the form.

*A Voucher Index May Be Required.* Since vouchers are numbered serially for the month and filed in that manner, an Acco binder is usually the simplest method of preparing them for file. The index should be placed on the outside, and need contain no more than a list of the vouchers in numerical order, the amount involved, a statement of the transaction, and its date.

Unit fund accounts will be retained by the organization for at least *three* years after the latest entry contained therein. In the event that a civil claim, a criminal action, or an action involving military discipline has been instituted with regard to any entry or omission in the records, they should be retained until permission to dispose of them has been given specifically in writing by higher authority.

**Transfers of the Fund.** Until recently it was required that a proportionate part of the unit fund be transferred along with enlisted men who were assigned to other organizations, provided that their pro rata share of the fund exceeded a certain amount. This is no longer done. For the duration of the war and for six months thereafter, no part of the fund will be transferred to other organizations when personnel of the company are transferred.

In the event that the organization is about to enter combat under circumstances where the commanding officer of the company has reason to fear that funds might be lost through casualties, the fund will be left with the adjutant of a rear echelon, who will receipt for the fund and all records pertaining to it. The adjutant is custodian for the purpose of safeguarding the fund only. He may not make any disbursements from the fund. When the organization returns, the fund and its records will be returned to the original custodian or his duly authorized successor.

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Should the custodian of the fund be absent from his post of duty, whether on leave or for other reasons, for a period of more than three and not more than ten days, the company commander must appoint a substitute custodian to act in his place. The temporary custodian will give a memorandum receipt in duplicate, one copy of which will be filed with the fund account during the absence of the permanent custodian, and will be returned, receipted, to the temporary custodian when the fund is again transferred. The other will be retained by the permanent custodian until his return when both are destroyed.

When the custodian is absent for more than ten days, what might be called a formal transfer of the fund takes place. The procedure is the same, of course, when the original custodian is transferred to a new command or is permanently separated from the organization. The outgoing commander must close the fund accounts, balance the books, and complete all the steps which are necessary at the end of the month. He should make certain that the property pages in the front of the Council Book reflect the exact status of the property belonging to the organization. Certificates, vouchers, the check and bank books, and any other records pertaining to the fund must be brought up to date. The commanding officer should ascertain that he has completed all the preliminary steps of the transfer and then have the accounts and records approved by the council. Both the custodian's certificate and that of the council should be completed and the records submitted to the officer who is responsible for the quarterly inspection for audit and completion of the usual certificate by him.

The out-going custodian will then prepare the following financial statements:

1. Assets and liabilities.
2. Statement of revenues and expenditures since the last c osing of the account.
3. Statement of the bank balance as of the date of transfer and a reconciliation with that balance showing outstanding checks not yet cleared through the bank.

These statements will bear the following certificate:

"I certify that to the best of my knowledge and belief the attached statements are a complete and accurate record of the status of the ..... Fund, revealing all outstanding liabilities and sums due, and that the property owned by the fund is on hand."

After verifying the accuracy of the accounts, the new custodian will receipt for the fund property. This receipt, which may be appended to the statements of account by the old custodian, should be appended to the other records of the fund. One copy should be made and retained by the out-going custodian for his personal records. The new custodian should require scrupulous performance of each of the steps which the outgoing commander is obligated to perform. In case of doubt, he should decline to receive and receipt for the fund until the transfer has been completed in accordance with applicable directives.

Since most of the assets of the fund will be in the form of bank deposits, as a rule, at least, some steps must be taken to inform the banks involved of the identity of the officer who will draw on the account and make deposits in the future. It is not desirable to transfer the account by check except in the rare case when the organization is transferred and a new custodian appointed simultaneously.

A personal introduction by the out-going commanding officer may serve to identify the new custodian to the satisfaction of the bank. His signature, of course, will be required by the bank for their records. Since time is not always sufficient to permit a personal interview, a letter in substantially the same form as that shown on the "Instructions" page in the Company Council Book is sufficient. It need be no more than a statement of the fact that a new custodian has been appointed, his name, and the fact that he will thereafter have full authority to draw on the fund and make deposits. This should be signed by the former custodian and should also contain the signature of the new custodian for the benefit of the bank.

**Loss of Funds.** It is not enough to make the obvious statement that losses will not occur if the fund is administered properly. Loss of property can and does occur from time to time, although it is seldom likely that cash or securities will disappear if the responsible officer acts with care and discretion.

In any event, loss of parts of the organization fund requires that a board of three disinterested officers be appointed to investigate the circumstances sur-

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rounding the loss and make determinations of responsibility and recommendations as to appropriate action. The person or persons responsible for the loss will be held liable only in the event that dishonesty, fraud, or gross negligence is established.

**Posting of Financial Statement.** It is not enough that the fund be utilized for the benefit of the enlisted men to whom the fund properly belongs. Efforts should be made to acquaint the men of the organization with the policies of the council and the purposes for which the fund is being expended. It is required that a statement of the financial status of the fund, its revenues and expenditures, be published at least quarterly in order that the men may be informed of the condition of the fund.

Since the council is composed entirely of commissioned officers, there is no opportunity for the enlisted men to submit suggestions for the use of the fund unless some workable procedure is adopted. It has been found effective in some commands to allow enlisted men to submit suggestions to the council either through the noncommissioned officers or by means of a suggestion box. Any measures which result in a greater feeling of participation by all of the personnel of the company will bring a proportionate return in increased morale and a greater sense of organizational solidarity.

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## THE COMPANY PROPERTY BOOK

### *General*

**The Company Property Book.** *General.* General information for the preparation and keeping of a company property book is given in W.D. Circular 170, 1943 as amended by W.D. Circular 39, 1944.

It is the responsibility of unit commanders to maintain a company property book which will reflect at all times the status of all articles of authorized allowances of equipment for the unit. Authorized allowances of equipment include only those items listed in the applicable tables of basic allowances (T/BA), tables of equipment (T/E), tables of organization and equipment (T/O&E), and special tables of equipment (ST/E).

The company property book shall reflect at all time:

(a) Quantities of each item of authorized allowances of equipment prescribed for the unit except items of individual clothing and individual equipment issued under the provisions of AR 35-6560. (The latter will be entered on the appropriate individual clothing and equipment records.)

(b) Quantities of each item on hand and in serviceable condition.

(c) Quantities of items not on hand with validated requisitions therefor. (This excludes items of initial issue which are furnished by automatic supply.)

(d) Quantities of each item on hand in excess of authorized allowances with authority therefor.

It is the responsibility of unit commanders to maintain a jacket file of papers related to the articles shown in the company property book. (This will include papers on which property is received, requisitioned, turned in, and documents covering property lost, damaged or destroyed.)

Basically, the company property book is a simple bookkeeping record designed to reflect, with respect to each type of equipment, nomenclature, unit, authorized allowance, additional allowances, if any, with authority therefor, receipts, dispositions, quantity on hand, and items not on hand for which validated requisitions are held. Each entry in the company property book should be supported by a voucher.

### Components of Property Book

The company property book in its entirety consists of three parts, namely: the company property book, the jacket file, and the voucher register. The voucher register is not required by WD Circular 170 but it is advisable to keep one as it provides a ready reference and may save much time.

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## Forms Used

Circular 170, for purposes of illustration, uses QMC Form 424, appropriately modified for the company property book. However, the use of this form is not mandatory. Any similar form may be used as long as it shows the required information. Actually Form 424 is too small. It has been demonstrated through usage that a sheet or card 6½ inches by 9½ inches cut to fit string or ring binders of the same size is more practicable.

No specific form is prescribed for the jacket file. In practice it consists of manila envelopes in which the vouchers to the company property book are filed. If file cabinets are available in which they may be kept, manila folders will suffice. The voucher register is provided as a means of numbering vouchers to the company property book. It also serves as a thumb-nail sketch of each voucher which aids in identifying vouchers and locating them in the jacket file. The vouchers

**Register of Vouchers to Company Property Book Of** _____
Unit Designation

| *Voucher No.* | *Date Posted* | *To or From* | *First Item* | *Ref.* |
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**Type of Voucher Register That May be Transcribed to Face of Jacket File. This Form May Be Changed or Altered to Meet Individual Needs.**

**Figure 1.**

should be filed in the jacket file in numerical sequence according to the numbers assigned from the voucher register. No specific form is provided for the voucher register. A suggested form is shown herein as Figure 1. This form may be transcribed on the face of the manila envelope in which the vouchers are filed.

## Two Methods of Keeping Jacket File and Voucher Register

One method of keeping the jacket file and voucher register is to number all vouchers in a single series from one voucher register and file them in numerical sequence in one or more manila envelopes. Under this method the face of each envelope will serve as the register and will show at a glance the vouchers contained in the envelope.

A second method is to keep a separate jacket file and voucher register in respect of each supply service, assigning a block of numbers to each. For example, numbers 1 to 100 may be assigned for vouchers pertaining to Chemical War Service. As vouchers accompanying Chemical Warfare supplies are received, voucher numbers are assigned from the voucher register on the face of the jacket

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file, the vouchers are posted to the company property book and then filed in the jacket file. Similarly, blocks of numbers would be assigned to the other supply services and jacket files and voucher registers maintained for each in the same manner.

Either of the above methods is acceptable. The second method is preferable in that it affords a means whereby vouchers in respect of property issued by the several supply services may be kept separate.

### Posting to Company Property Book

**Receipt of Property.** When property is received on a shipping document, property issue slip, or tally out, the first operation is to assign the paper a voucher number from the voucher register. The next step is to post the voucher to the appropriate pages of the company property book. First enter the voucher No. from the voucher being posted. Next enter the date of the voucher. In the 'received' column enter the quantity of items received and extend the total (items received plus previous balance) to the balance column.

**Property Turned In.** When it becomes necessary to replace items of authorized allowances that have become unserviceable such items will be listed on a property turn-in slip and relocated to the appropriate supply point. If replacement is made immediately no entry need be made in the company property book other than to change serial numbers, if the item turned in was a serially numbered article. If the item turned in is not replaced immediately, an entry will be made in the 'Turned In' column showing the exact quantity returned. At the same time the amount shown in the balance column will be adjusted accordingly.

**Property Requisitioned.** WD Circular 170, 1943 requires that each unit commander have in his possession in serviceable condition all articles of authorized allowances of equipment prescribed for his unit or a validated requisition or similar confirmation of his request to be supplied with such articles as are missing. A validated requisition is one signed by the supply establishment acknowledging its receipt. Requisitions are not required for original or initial issues of authorized allowances of equipment as such items are furnished automatically. Replacements of authorized items of equipment, if not replaced by direct exchange will be requested on a property issue slip and a notation of the quantity ordered will be placed in the column 'On Requisition.' When such an entry is made no change need be made in the 'Balance' column.

### Arrangement in Binder

One card or page must be prepared for each type of item listed in the tables of equipment. These cards should be arranged alphabetically by nomenclature within the supply service furnishing the items. The cards for each supply service should then be arranged in the binder in the same order that they are listed in the tables of equipment.

### Authorized Items

According to WD Circular 170, 1943, only those items listed in the tables of equipment should be shown in the company property book. However, it is advisable—and most inspecting officers will insist—that components of spare parts sets and organizational equipment for major items be shown. It is not necessary to prepare individual cards for each of these items. It is common practice to list them on the reverse side of the card for the major item to which they pertain. It is also permissible to list them on a separate card, filing such card immediately following the card for the major item. See Figure 3 for illustration.

Unit assemblies, kits, chests, tool sets, etc., listed in the tables of equipment will be carried in the company property book as single items. Contents of these kits, chests, etc., must be complete before any quantity can be posted to the 'balance' column. If desired, the contents of kits and chests may be listed on the reverse side of the cards for those items.

Tools are important items and most unit commanders will desire a complete record of receipts, turn-ins and balances of such items. In such cases the customary procedure is to prepare one card for the set which will be filed in the company property book. Then a separate card is prepared for each component of the set. The latter are filed in a separate binder or in a specially designed

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Space should be provided for Voucher Numbers of papers posted to P/B.

| On Req. | | Turned In | | |
|---|---|---|---|---|
| Voucher No. | Date | Not | Received | Issued | Balance |
| 5 | 1/10/44 | | 21 | | 21 |
| 39 | 5/14/44 | | | 1 | 20 |
| 40 | 5/14/44 | 1 | | | |
| 52 | 7/3/44 | | 1 | | 21 |
| 59 | 7/21/44 | Lost Joint Accountability | | | 21 |
| 69 | 8/1/44 | | 35 | | 56 |

Forms must be altered as illustrated.

Any M/R transactions should be kept in separate binder.

All inventory figures should be made with red ink when possible.

When items are issued in lieu of T/E items another card should be prepared and a cross reference made.

For balance of Carbines see card for Rifle, U. S., Cal. .30, M1917

Letter authorizing excess allowances should be filed in P/B and reference to voucher number made

Article CARBINE, Cal. .30, M1

Description (SNL B-1, B-28)

Unit ea. Unit cost $51.35

Maximum 165 Minimum 144

War Department Voucher No. 29
Q. M. C. Form No. 424
Revised April 6, 1931

Stock No.

Sheet No.

U. S. GOVERNMENT PRINTING OFFICE 3—9933

SNL reference made on each card. Prices should be shown when available.

"Minimum" space used for T/E allowance quantity.

**Figure 2. Alteration of QMC Form 424 for Use in Company Property Book.**

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Columns may be changed as shown to give a thora picture of all items on hand, and short.

Figures shown in "On Hand" and "Short" columns should be entered in pencil as they will frequently change. All other entries on this page may be typed in, or at least written in ink.

**STOCK RECORD**

**Organization Spare Parts & Equipment**

| Alterations. Additions. | | | | |
|---|---|---|---|---|
| Authorized | On Hand | Short | Nomenclature | |
| | | | SNL B-28 | SNL groups can be shown for purposes of requisition. |
| 3 | 1 | 2 | PARTS, Spare, set | |
| 9 | 3 | 6 | EJECTOR, assy. | |
| 6 | 2 | 4 | EXTRACTOR | Each item in the spare parts set may be shown to give an accurate picture of authorized items. |
| 3 | 1 | 2 | GUARD, hand, assy. | |
| 3 | 1 | 2 | GUIDE, oper. slide, sp | |
| | | | etc., etc. | |
| 165 | 56 | 109 | OILER, carbine, M1 | |
| 165 | 56 | 109 | SLING, carbine, M1 | Although it would be better to show full nomenclature of all items, as the form is not large enough, partial nomenclature can be listed and the SNL consulted when requisitioning. |
| 165 | 56 | 109 | THONG | |
| | | | etc., etc., etc. | |
| | | | SNL B-3 | |
| 165 | 56 | 109 | BRUSH, thong, cal. .30 | |
| | | | SNL B-21 | |
| 165 | 40 | 116 | POUCH, web | |
| | | | SNL M-3 | |
| 330 | 112 | 218 | BRUSH, clean, cal. .30, M2 | |
| 165 | 56 | 109 | BRUSH, clean, " M31 | |
| 33 | 11 | 22 | ROD, clean, jointed, M8 | |
| | | | etc., etc., etc. | |

Article for the Carbine, Cal. .30, M1

Description

Unit — Unit cost

Maximum — Minimum

War Department
Q. M. C. Form No. 424
Revised April 6, 1931

Stock No.

Sheet No.

U. S. GOVERNMENT PRINTING OFFICE 3—9933

**Figure 3. Illustration of How Organizational Spare Parts and Equipment for a Major Item May Be Shown on the Reverse Side of the Card for the Major Item.**

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section of the company property book. As a rule inspecting officers will not be concerned with the cards for these individual components.

### Serial Numbers

Paragraph 22b, AR 45-80, requires that records of serial numbers appearing on items of ordnance equipment shall be kept by unit supply officers. The company property book affords a convenient place to keep such records. The numbers may be entered on the reverse side of the card for the item or they may be listed on a separate card and filed immediately following the card for the item.

### Expendable Property

Expendable property not listed in the tables of equipment should not be kept in the company property book, but a special record of it may be kept if thought necessary. The advantage of keeping a record of expendable property is that it would provide information for recording and re-ordering.

### Individual Clothing and Equipment

Items of individual clothing and equipment will not under any circumstances be entered in the company property book but will be carried on AGO Form 32 (the old Forms 32 and 33, until used up) as prescribed in par. 15b AR 35-6560. Gas masks as prescribed by all tables of equipment will not be carried in the company property book but will be listed on the individual Form 32 (the old Forms 32 and 33, until used up), except those gas masks that are in excess of authorized allowances. The latter will be carried in the company property book.

### Issues of Items Listed in Company Property Book

Articles of individual equipment for officers, army nurses and warrant officers which are carried in the company property book will be issued to such individuals. Requisitions or property issue slips required to explain the absence of such articles will be validated but will not be forwarded for resupply. Issues of such items by unit commanders will be made on property issue slips, shipping tickets, or similar improvised forms, prepared in triplicate, which will be distributed as follows:

(1) The original (bearing certificate prescribed below) will be filed with company property book.

(2) The duplicate will be filed in the company jacket file.

(3) The triplicate will be delivered to the individual receiving the property.

The original of the property issue slip, shipping ticket, etc. on which items issued to officers, Army nurses, or warrant officers are listed will bear one of the following certificates, whichever is applicable:

(1) I certify that the articles listed hereon have not been previously issued to me.

(2) I certify that the articles listed hereon were previously issued to me at ....., but were turned in by me at ..... and have not been replaced.

(3) I certify that the articles listed hereon were previously issued to me at .....(station)....., but were lost or rendered unsericeable by means other than fair wear and tear; that proper adjustment has been effected and no replacement has been received.

Where officers, army nurses, or warrant officers who have been previously equipped join a unit such equipment will be entered in the company property book. If such action creates a surplus of individual equipment within the unit, such surplus articles will be turned in to the appropriate local station supply officer on a property turn-in slip or improvised form prepared in triplicate and distributed as follows:

(1) The original, receipted by the appropriate station supply officer, will be filed with the company property book.

(2) One copy will be filed in the company jacket file.

(3) One copy will be retained by the station supply officer as a debit voucher to his stock record account.

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### Substitution of Items of Equipment

There will be instances in which certain items listed in the tables of equipment will not be available for issue and similar items will be issued in place of them. In such cases pages or cards should be provided in the company property book for both items and these pages cross-referenced to each other to show the substitution.

### Memorandum Receipt Property

Property held on memorandum receipt is not carried in the company property book. If desired, records of memorandum receipt property may be kept on forms similar to those used in the company property book. Care should be taken however not to let the two sets of records become mixed.

### Transfer of Company Property

Under the provisions of paragraph 14(a), AR 35-6520, "A company or detachment commander is responsible for all public property pertaining to his command, whether he receipts for it or not". It is apparent therefore that a transfer of company property will be made by the commanding officer of the unit.

Transfers of company property will be made whenever a commanding officer of a unit is to be permanently relieved of his command, or when he is temporarily transferred for a period exceeding one month (paragraph 14(a), AR 35-6520). In either case he will turn the company property over to whomever has been designated to succeed him.

It is the responsibility of the officer being relieved to assist the new commanding officer in making an inventory of the property. After the new commanding officer has assured himself that all property is on hand as shown in the company property book he will cause to have entered on each page of the company property book, after the last entry on the page, the entry as per joint inventory and the quantity inventoried. This entry should be in red ink and show the date the inventory was taken.

Where the inventory reveals any discrepancies it is the responsibility of the officer being relieved to execute such forms as reports of survey and statements of charges as may be necessary to adjust such discrepancies.

### Certificate of Transfer

The first page of the company property book should provide a series of certificates for transfer of the company property. After a new company commander has inventoried the property and satisfied himself that the company property book is correct, he should sign the next unsigned certificate, thus accepting responsibility for the company property. (See Figure 4 for an illustration of how the first page should appear.)

### Quarterly Dropping for Minor Non-Expendable Articles

It is no longer permissible for any unit equipped with a table of equipment to drop $10.00 worth of non-expendable property (of any supply service) from its company property book every three months.

#### Bibliography

WD Circular No. 170, 1943.
WD Circular No. 39, 1944.
AR 35-6520 Property Accountability and Responsibility.
AR 35-6560 Receipt, Shipment and Issue of Property.
AR 45-80 Ordnance Property.

## SERVICE RECORD

Probably the most important single record for an enlisted man is his service record. This record may be the basis for judging any future claims between the enlisted man and the government, in addition to being the basic record from which much administrative action evolves. Every day it becomes more and more valuable to the government, the enlisted man, his family and even to his descendants.

*Definition.* The service record is the compiled military record of one individual soldier for one enlistment or for one term of service.

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**STOCK RECORD**

| Date | Vou. No. | Received | Issued | Balance |
|---|---|---|---|---|
| | | **CERTIFICATE OF TRANSFER OF PROPERTY RESPONSIBILITY** | | |
| | | **I hereby assume responsibility for the property of this unit in the quantities shown on each page of this book as on hand per joint inventory. I am the first commanding officer of this organization** | | |
| | | **Date** | | |
| | | **I hereby assume responsibility for the property of this unit in the quantities shown on each page of this book as on hand per joint inventory** | | |
| | | **Date** | | |

This first certificate differs from succeeding ones in the 2nd sentence. (Suggestion only)

The date should always be shown on transfers.

As many certificates as will fit on this sheet may be typed on for future transfers.

Article .....

Description .....

Unit ..... Unit cost .....

Maximum ..... Minimum .....

War Department
Q. M. C. Form No. 424
Revised April 6, 1931

Stock No. .....

Sheet No. .....

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**Figure 4.**

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When a man enters the service by induction, enlistment, draft, or reenlistment, the officer to whom the individual first reports for duty opens the service record. In the case of enlisted men of the National Guard called into Federal service, the service record will be prepared by the organization commander who was responsible for the maintenance of the service record while the individual was a member of the National Guard.

*Custodian of the Service Record.* The personnel officer (formerly known as the personnel adjutant) is responsible for the proper posting, transferring, and closing of all service records, except the entries as to character and efficiency rating as a soldier, which will be entered and initialed by the company or detachment commander. He is responsible not only for the entries which he makes, but also for all entries which have been made prior to his receiving it. The responsibility for service record entries in an organization which has no personnel officer will be that of the organization commander.

It is absolutely essential that the record be correct in every detail at all times; however, clerical errors sometimes occur. For this reason each service record should be checked minutely and periodically for errors of omission or commission. A reading of the record (the easy way) may disclose some of the obvious errors, but other mistakes will remain. One method frequently used is to inspect all the records each time the Articles of War are read (each six months). Another good rule to follow is to check thoroughly a man's service record at the time he is transferred from an organization and also at the time he arrives at an organization.

*General.* The information necessary to make the proper entries in the service record comes from a variety of sources, such as the morning report, daily sick reports, records of trials by summary courts-martial, general and special court-martial orders, special and company orders, the company commander, and also from the soldier himself.

Regulations require that entries be made with black or blue-black ink, except where pencil notations are authorized. Pencil notations may be used when a soldier is awaiting trial or result of trial and when verification of prior service is pending. Another instance where deviation from the customary entry is authorized is where red ink is required ('Conscientious Objector' on cover, when repaying soldiers' deposits, or when no insurance is desired.)

In the event an error is detected or an erroneous entry is made, the proper procedure for deleting the error is to draw a thin line through the entry, initial, and date it. Erasures and the use of ink eradicator are prohibited.

Any entries which require the initials of the personnel officer will be initialed at the time of entry.

When no data is available for a particular section, it should be left blank. The entries 'none' or 'nothing' will be used only when specifically authorized if appropriate. For example, 'nothing' will be used in indorsements following 'Due United States'; 'none' may be used in Remarks-Administrative if the man has no religious conviction or when there are no street and house number on page 2 of the record.

It is not uncommon for a page or several pages to be completely used. When this occurs, use Inserts to the Service Record (WD AGO Forms No. 24-1 to 24-7). If these are not available locally, it is permissible merely to make up a blank page, insert the necessary information, and affix it to the record. This additional page is noted by an entry to that effect on the margin of the original page.

*Service Record in Detail.* In going through the service record page by page the entries will be discussed but not the particular subject; for example, in discussing "Absence without proper authority or in desertion" only the appropriate entries will be mentioned, inasmuch as the subject "AWOL and Desertion" is discussed in detail elsewhere in this chapter.

On the cover page the entries are obvious: the last name of the individual, Army Serial Number (ASN), followed by his first name and middle initial. The abbreviation NMI, indicating "no middle initial," is no longer authorized. The line for indicating the arm or service will be left blank except when individuals are sent to oversea depots as replacements, in which event the arm or service in which it is intended that the individual will serve after arrival

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overseas will be shown. It is not necessary to change current service records to conform with this policy. The color or race is filled in, and then an "X" is placed in the appropriate box to indicate the component of the Army the man is in, i.e., Regular Army, National Guard of the United States, Regular Army Reserve, Enlisted Reserve Corps, or Army of the United States. The date that the service record is opened is then indicated, leaving the second or closing date blank. If the individual concerned is a conscientious objector, that fact will be printed in red ink in the upper left corner.

The induction record at the top of page 1 will be filled in only for selective service men by the induction officer at the induction station. The entries are self-evident. Line 1 is the place to which the individual is authorized travel pay upon discharge.

The date or dates of completion of immunization will be entered by the personnel officer from the Immunization Register WD, MD Form No. 81 which is kept with the individual's records. Immediately below the words, "Records of Immunization," the authority should be corrected to read "Par. 10, AR 40-210." If immunization is incomplete, the dates of partial immunziation will be shown. Time intervals are prescribed in the above cited regulation. In general, however, smallpox requires reimmunization every three years, typhoid a stimulating dose each year after the initial series of three injections and tetanus a stimulating dose at the expiration of the first year. In the space provided for "Other Vaccinations," there will appear the blood type of the individual, in addition to tetanus toxoid, yellow fever inoculations, or other vaccination. Under the heading "Carrier Examinations," entries are no longer required.

The "Enlistment Record" entries are obvious, with the exception of the "Size of Mask," "Size of Shoe," and "Occupation" which should be left blank. "Educational Qualifications" and "Occupational Qualifications" will be left blank as this information appears on W.D., A.G.O. Form No. 20. Under the heading "Home Address and Nearest Relative," the entry of "none" or "nothing" may be used. Nearest relative is considered to be mother, father, brother, or sister.

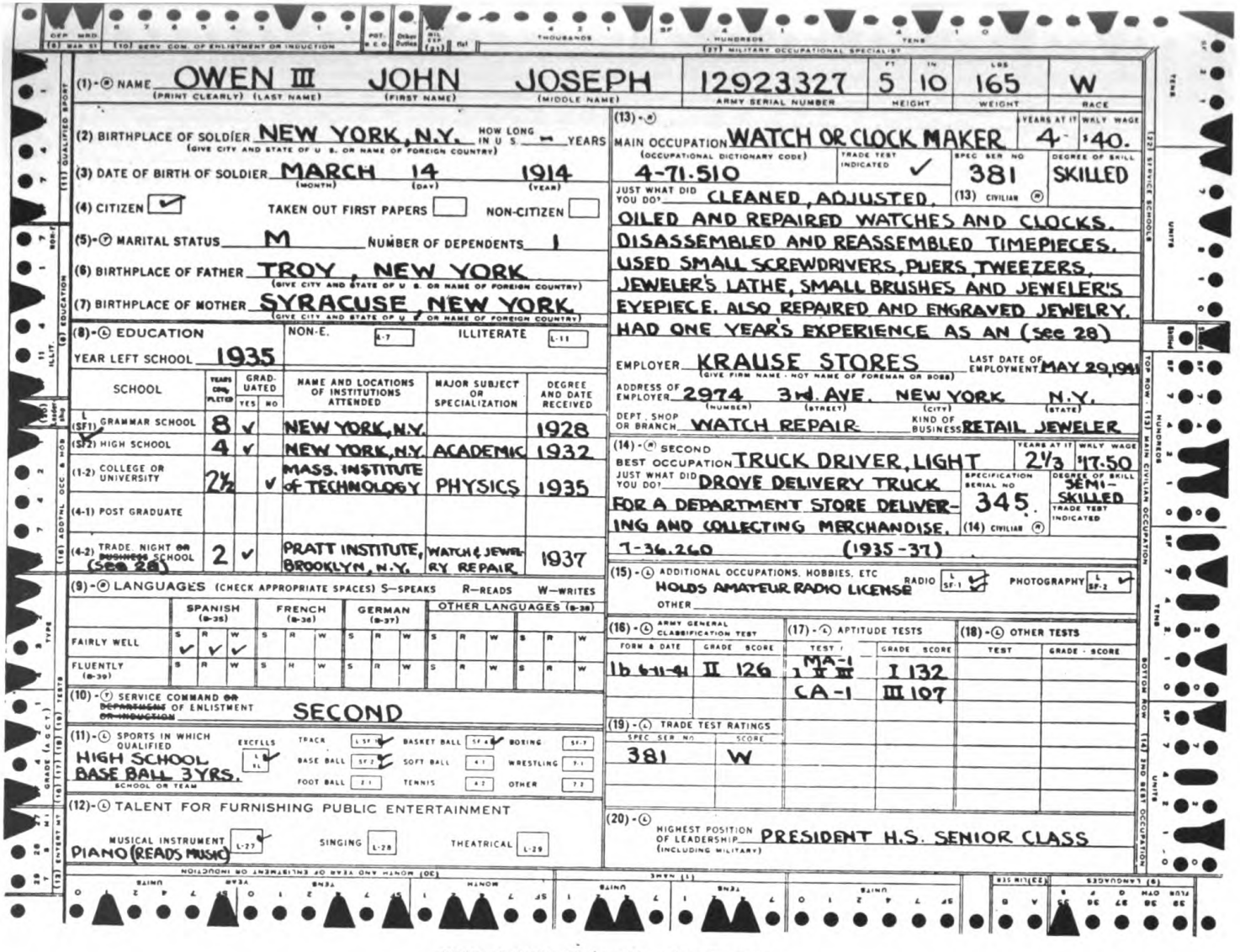
The space for the "Designation of Beneficiary" should be filled in by the induction officer. However, if this was not accomplished, the personnel officer should interview the individual concerned, explain the provisions of the law, and if there is a legal dependent the entry should be made in the service record. In the event of a change in beneficiary, WD, AGO Form No. 41 should be forwarded to The Adjutant General. If there appears to be no eligible person, or the individual does not desire to name a beneficiary the personnel officer enters the words "Declined to designate any person as his beneficiary." If the beneficiary named is either wife, mother, or sister, their own first and middle names should be shown, for example, Nancy Ruth Doe, not Mrs. John Henry Doe. The purpose of the designation is to establish eligibility for the six-month death gratuity.

There are two classes of beneficiaries. The first or preferred beneficiary includes widows and children; the second or designated dependent relative includes a relative with an insurable interest who has been previously designated. The payment may not be made to any married child or to a nondependent child over the age of 21. If there is no widow, child or previously designated eligible dependent relative, the gratuity is payable to any grandchild, parent, brother or sister or grandparent shown to have been dependent, or having an insurable interest, upon the enlisted man. In the case of parents and/or brothers or sisters the relationship alone is sufficient to show insurable interest. No friend can be designated. Should it be necessary to change beneficiaries, the previous entry will be lined out, initialed and dated, and the new beneficiary entered under "Remarks-Administrative."

"Current Enlistment" is filled in from the discharge certificate. Lines 1 to 7 inclusive and line 10 are not filled out for selective service men. Lines 1 and 10 are not filled out for Regular Army, National Guard or Regular Army Reserve. "Accepted for service at" means the place to which the man is entitled to travel pay upon discharge. "Enlisted at" is the place where the soldier was sworn in. On line 9, the initials indicated are those of the recruiting or induction officer. If there is no prior service, lines 8 and 9 will be left blank.

"Prior Service" is filled in by the recruiting or inducting officer from the man's discharge certificate. If the man claims prior service but cannot produce his

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(1) NAME: OWEN III (LAST NAME) JOHN (FIRST NAME) JOSEPH (MIDDLE NAME) — 12923327 (ARMY SERIAL NUMBER) — 5 FT 10 IN (HEIGHT) — 165 LBS (WEIGHT) — W (RACE)

(2) BIRTHPLACE OF SOLDIER: NEW YORK, N.Y. (GIVE CITY AND STATE OF U. S. OR NAME OF FOREIGN COUNTRY) — HOW LONG IN U. S. — YEARS

(3) DATE OF BIRTH OF SOLDIER: MARCH (MONTH) 14 (DAY) 1914 (YEAR)

(4) CITIZEN ✓ — TAKEN OUT FIRST PAPERS ☐ — NON-CITIZEN ☐

(5) MARITAL STATUS: M — NUMBER OF DEPENDENTS: 1

(6) BIRTHPLACE OF FATHER: TROY, NEW YORK (GIVE CITY AND STATE OF U. S. OR NAME OF FOREIGN COUNTRY)

(7) BIRTHPLACE OF MOTHER: SYRACUSE, NEW YORK (GIVE CITY AND STATE OF U. S. OR NAME OF FOREIGN COUNTRY)

(8) EDUCATION — NON-E. ☐ — ILLITERATE ☐

YEAR LEFT SCHOOL: 1935

| SCHOOL | YEARS COMPLETED | GRADUATED YES | GRADUATED NO | NAME AND LOCATIONS OF INSTITUTIONS ATTENDED | MAJOR SUBJECT OR SPECIALIZATION | DEGREE AND DATE RECEIVED |
|---|---|---|---|---|---|---|
| (SF1) GRAMMAR SCHOOL | 8 | ✓ | | NEW YORK, N.Y. | | 1928 |
| (SF2) HIGH SCHOOL | 4 | ✓ | | NEW YORK, N.Y. | ACADEMIC | 1932 |
| (1-2) COLLEGE OR UNIVERSITY | 2½ | | ✓ | MASS. INSTITUTE of TECHNOLOGY | PHYSICS | 1935 |
| (4-1) POST GRADUATE | | | | | | |
| (4-2) TRADE, NIGHT OR BUSINESS SCHOOL (See 28) | 2 | ✓ | | PRATT INSTITUTE, BROOKLYN, N.Y. | WATCH & JEWELRY REPAIR | 1937 |

(9) LANGUAGES (CHECK APPROPRIATE SPACES) S—SPEAKS R—READS W—WRITES

| | SPANISH (B-35) S | R | W | FRENCH (B-36) S | R | W | GERMAN (B-37) S | R | W | OTHER LANGUAGES (B-38) S | R | W |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FAIRLY WELL | ✓ | ✓ | ✓ | | | | | | | | | |
| FLUENTLY (B-39) | | | | | | | | | | | | |

(10) SERVICE COMMAND OR DEPARTMENT OF ENLISTMENT OR INDUCTION: SECOND

(11) SPORTS IN WHICH QUALIFIED: HIGH SCHOOL BASE BALL 3YRS. (SCHOOL OR TEAM) — EXCELS ☐ — TRACK ☐ — BASKET BALL ✓ — BOXING ☐ — BASE BALL ✓ — SOFT BALL ☐ — WRESTLING ☐ — FOOT BALL ☐ — TENNIS ☐ — OTHER ☐

(12) TALENT FOR FURNISHING PUBLIC ENTERTAINMENT — MUSICAL INSTRUMENT: PIANO (READS MUSIC) ✓ — SINGING ☐ — THEATRICAL ☐

(13) MAIN OCCUPATION: WATCH OR CLOCK MAKER — YEARS AT IT: 4 — WKLY WAGE: $40.
(OCCUPATIONAL DICTIONARY CODE) 4-71.510 — TRADE TEST INDICATED ✓ — SPEC SER NO 381 — DEGREE OF SKILL: SKILLED
JUST WHAT DID YOU DO? CLEANED, ADJUSTED, OILED AND REPAIRED WATCHES AND CLOCKS. DISASSEMBLED AND REASSEMBLED TIMEPIECES. USED SMALL SCREWDRIVERS, PLIERS, TWEEZERS, JEWELER'S LATHE, SMALL BRUSHES AND JEWELER'S EYEPIECE. ALSO REPAIRED AND ENGRAVED JEWELRY. HAD ONE YEAR'S EXPERIENCE AS AN (see 28) — (13) CIVILIAN

EMPLOYER: KRAUSE STORES (GIVE FIRM NAME - NOT NAME OF FOREMAN OR BOSS) — LAST DATE OF EMPLOYMENT: MAY 29, 1941
ADDRESS OF EMPLOYER: 2974 (NUMBER) 3rd. AVE. (STREET) NEW YORK (CITY) N.Y. (STATE)
DEPT., SHOP OR BRANCH: WATCH REPAIR — KIND OF BUSINESS: RETAIL JEWELER

(14) SECOND BEST OCCUPATION: TRUCK DRIVER, LIGHT — YEARS AT IT: 2⅓ — WKLY WAGE: $17.50
JUST WHAT DID YOU DO? DROVE DELIVERY TRUCK FOR A DEPARTMENT STORE DELIVERING AND COLLECTING MERCHANDISE. — SPECIFICATION SERIAL NO 345 — DEGREE OF SKILL: SEMI-SKILLED
7-36.260 (1935-37) — (14) CIVILIAN — TRADE TEST INDICATED

(15) ADDITIONAL OCCUPATIONS, HOBBIES, ETC: HOLDS AMATEUR RADIO LICENSE — RADIO ☐ — PHOTOGRAPHY ✓
OTHER

(16) ARMY GENERAL CLASSIFICATION TEST — FORM & DATE: 1b 6-11-41 — GRADE SCORE: II 126

(17) APTITUDE TESTS

| TEST | GRADE SCORE |
|---|---|
| MA-1 1 II III | I 132 |
| CA-1 | III 107 |

(18) OTHER TESTS

| TEST | GRADE - SCORE |
|---|---|
| | |

(19) TRADE TEST RATINGS

| SPEC SER NO | SCORE |
|---|---|
| 381 | W |

(20) HIGHEST POSITION OF LEADERSHIP (INCLUDING MILITARY): PRESIDENT H.S. SENIOR CLASS

(30) MONTH AND YEAR OF ENLISTMENT OR INDUCTION — (1) NAME — (23) LANGUAGES

**W.D. A.G.O. Form No. 20 (Front).**

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# SOLDIER'S QUALIFICATION CARD

**NOTE:** DO NOT ATTEMPT TO FILL OUT THIS CARD WITHOUT FIRST READING INSTRUCTIONS CONTAINED IN AR 615-25 VERY CAREFULLY

## (21)-(P) PREVIOUS MILITARY EXPERIENCE

| ARM OR SERVICE | YEARS IN EACH | HIGHEST GRADE | CATEGORY R A N G C C C ETC | LAST DISCHARGE (YEAR) | SPECIAL TRAINING RECEIVED: SPECIFIC NATURE | YEARS | MO'S | LAST DATE (YEAR) |
|---|---|---|---|---|---|---|---|---|
| ORD | 2½ | CPL | ROTC | 1935 | BASIC | 2 | 6 | 1935 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

## (22)-(S) SERVICE SCHOOLS, ARM, OR SERVICE

| SERVICE SCHOOLS, ARM, OR SERVICE | NUMBER OF WEEKS | COURSE | YEAR GRADUATED AND RATING (IF ANY) |
|---|---|---|---|
| THE ORDNANCE SCHOOL | 8 | INSTRUMENT REPAIR FIRE CONTROL | 1942 E |
| | | | |
| | | | |
| | | | |

(23)-(S) LIMITED SERVICE (TYPE) CLASS A ☐ CLASS B ☐
DESCRIBE (CLASS B ONLY) _____

(24) SD

(25) PREFERRED

(26) ASSIGNMENT RECOMMENDED BY RECEPTION CENTER INSTR. REPAIRMAN, NONELECT. 098

## (27)-(P) CLASSIFICATION IN MILITARY SPECIALTIES

| DESIGNATION | SPEC SER NO | POTENTIAL DATE | SEMI-SKILLED DATE | SKILLED DATE |
|---|---|---|---|---|
| INSTR. REPAIRMAN, NON ELECT. | 098 | 9-12-41 | | 5-10-42 |
| INSTR. REPAIRMAN, FIRE CONTROL | 922 | | 8-12-42 | 2-10-43 |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

(28) REMARKS (8) 3 HRS PER NIGHT, 3 NIGHTS PER WEEK. (13) INSPECTOR IN THE WATERBURY WATCH FACTORY.

## (29) RECORD OF CURRENT SERVICE

| DATE | ORGANIZATION AND STATION | GRADE | PRINCIPAL DUTY |
|---|---|---|---|
| 6-16-41 | 2ND ORD TNG BN APG MD | PVT | BASIC TNG |
| 7-14-41 | 5TH ORD TNG BN APG MD | PVT | TECHN. TNG INSTR REPAIR |
| 9-23-41 | 26TH ORD CO (MM) FORT LEWIS WASH | PFC | INSTR REPAIR NONELECT 098 |
| 6-15-42 | THE ORD SCHOOL APG MD | T/5 | STUDENT |
| 8-15-42 | 26TH ORD CO (MM) FORT LEWIS WASH | S/SGT | INSTR REPAIR FIRE CONTROL 922 |
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(30)-(P) DATE OF — (CROSS OUT ONE) ENLISTMENT INDUCTION JUNE 10, 1941
DATE OF INTERVIEW JUNE 11, 1941 STATION CAMP UPTON, N.Y.
SIGNATURES
INTERVIEWER Richard Harkness, Pfc.
CLASSIFIER Thomas A. Grant, Sgt.
SOLDIER John J. Quinn III.

(31) DRIVES AUTO ☑ 3 TON TRUCK ☑ MOTORCYCLE ☐
HOLDS NEW YORK STATE DRIVER'S PERMIT

(32) QUALIFICATIONS IN ARMS

| WEAPON | COURSE | QUALIFIED | SCORE | DATE |
|---|---|---|---|---|
| CAL 30 M-1 | C | SS | 184 | 7-2-42 |
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AGO FORM NO 10 APRIL 1943

**IMPORTANT** — UNDER N ITANCES WILL THIS CARD BE FOL ED, OR CREASE

DOCUMENT MOISTURE RESISTANT U.S. PAT. NO. 2,215,867

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discharge certificate, a penciled notation, "Service Not Verified," should be placed in the prior service section until verified by an extract of the service record from the Adjutant General. When the extract is received, the penciled notation is removed and the correct entries are made. On line 3, it is necessary to show all time lost and also any time retained for the convenience of the government. If there is no time lost, that fact should be so stated.

On page 4 the only section in which entries are to be made is that headed "Articles of War". When a man joins the army, he must have certain of the Articles of War read and explained to him within 6 days after he enters the service, and further, these must be repeated every six months for as long as the soldier remains in the Army. The dates when these Articles (AW 1, 2, 29, and 54 to 96 inclusive, and 104 to 109 inclusive are read and explained are entered in the service record along with the initials of the personnel officer. In addition it it required that AW 28 be emplained to all enlisted men. The personnel officer receives the information forming the basis for the entries either orally or by informal memoranda from the company commander. The policy generally in use is to read the Articles of War twice each year (June and December) and insure that all personnel are present. This eases the job of both the company commander and the personnel officer, as he does not have to search through the service records to determine which men are due to have the articles read to them.

The "Military Record," page 5, is intended, in accordance with regulation, to show all changes of grade. The column for initials is used by the personnel officer. A typical entry is as follows:

Cpl 27 Dec 44 SO No. 360 Hq Ft. Blank P.O.

The heading "Specialist Ratings" is no longer applicable as these were replaced by the technician grades in June 1942. No information is entered in this section.

When a soldier leaves his assigned organization on detached service, he is then said to be attached to the organization to which he reports. Information of this type will be inserted in the space entitled "Organizations to Which Attached." No entry is made at the reception center; the first entry is generally made at the replacement center. Special duty is not shown in this section, but attendance at a specialty course at a service school is entered here. The information necessary to make the proper entries in the service record is merely the place to which the soldier is going and the dates.

A soldier is assigned to an organization when he fills an allotted Table of Organization vacancy. The sections headed "Original Assignment" and "Organizations to which Subsequently Assigned during this Enlistment Period" are intended to show the organizations to which the individual was assigned during his term of service commencing with the first organization to which he was assigned. In addition, it is necessary to show the station and date of the assignment. Attachment and special duty are not shown here.

Furlough time and also time for a delay en route are entered on page 6 of the service record. The dates shown are inclusive, the last date being the day before the man returns, that is, his actual last day of furlough. The authority for furloughs, passes, or delays is AR 615-275. If the soldier has been granted an extension, the number of days and the authority therefor must be indicated. The day the man actually rejoins the organization is shown following the word "Rejoined." The day of departure is a day of absence and the day of return a day of duty. If the soldier should return late from a furlough, the entry is made "AWOL after furlough .... days."

Under the general heading "Foreign Service" is listed a soldier's destination outside the continental limits of the United States; in case this is classified, then the code designation is given. Also shown are the port of embarkation or place of departure, together with the date of departure, the port of debarkation or place of arrival and the date.

The last section on page 6 provides space to record "Medals, Decorations, and Citations" received by the soldier together with the authority and date of the award. When pay is affected, the effective date will be entered in "Remarks Financial."

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AW 107 states in substance that every soldier who deserts or absents himself for more than one day, or who is confined for more than one day under sentence, or while awaiting trial and disposition of his case providing the trial results in conviction, or through the intemperate use of drugs or alcoholic liquor, or through disease or injury the result of his own misconduct, shall have to serve after his return to a full duty status that amount of time required to make up his full enlistment period.

Page 7 of the service record is used to record this so-called "bad time." The dates in this section are inclusive, the first day being a day of absence, confinement, etc., regardless of the hour, and the day of return being a day of duty, regardless of the hour. A man AWOL on the 1st of the month and returning on the 5th would have four days of time lost and the dates shown would be the 1st and the 4th, the 5th being a day of duty. Note that confinement, sick not in line of duty AR 35-1440 or AW 107, AWOL, or desertion must be in excess of one day before an entry is made in the service record. Thus, a man sick, NLD AR 35-1440 entering the hospital on 1 Dec. 44 released at any hour on 2 Dec 44 will lose no time because 2 Dec 44 is a day of duty and there has been no absence in excess of one day. Section (a) is for entering bad time for AWOL or desertion. A man who goes into the hands of civil authorities from a status of AWOL is still considered to be AWOL, but it is necessary to show that he is in the hands of civil authorities and the reason therefor under "Remarks-Administrative." Bad time for the time a soldier is actually in confinement or for time he is in confinement awaiting trial or disposition of his case *providing* the trial results in conviction is recorded in Section (b). While the man is awaiting trial the entry is made in pencil, then if he is acquitted the entry is removed; if he is convicted the entry is made permanently in ink. If the man is in arrest before trial and he is convicted, the first date entered is the day the sentence is announced in court, not the date of arrest. This is also true when no restraint was imposed pending trial.

The service record of a soldier who is held by civil authorities and who is convicted will have the dates shown and the entry "See remarks." All the details will then be entered in "Remarks-Administrative." If the soldier is acquitted the entry is made in "Remarks-Administrative" only. A man who is picked up by the civil authorities while on furlough will not start losing time until the day he is due to return. For example, a soldier has a ten-day furlough commencing on the 1st and terminating the 10th. He is due to return sometime on the 11th. He is picked up by the civil authorities on the 5th, given ten days in jail and released on the 15th. The first day of time lost then would be the 11th and the last day the 14th; however, the details will be shown in "Remarks-Administrative." Section (c) is used to record the time lost due to intemperate use of drugs or alcoholic liquors or through disease or injury resulting from misconduct. The first dates of "No, AR 35-1440" or "No, AW 107" in the sick book will be the first dates shown in this section on page 7.

No entries are required in the section "Absence Subsequent to the Normal Date of Expiration of Term of Enlistment."

Whenever a man is tried and convicted by a court-martial, the information is entered on page 8 under the heading "Record of Trials by Courts-Martial." Only convictions are entered here, *not* acquittals or disapprovals. The necessary information and sentence for a summary court is obtained from the charge sheet, which is the record of trial. Special and general court-martial sentences are obtained from the court-martial orders. It is necessary to show what type of court convicted the individual (summary, special or general) the Article of War violated and date of offense, a synopsis of the specification (for example AWOL fr 15 Dec 44 to 1 Apr 45), the date the sentence is announced and adjudged, the sentence as approved which must be followed by the number, source, and date of the order promulgating the sentence, and the date sentence is approved. The personnel officer certifies as to the correctness of the entries. When the soldier is released from confinement, the date and authority are entered. In no case will disciplinary punishment under Article of War 104 be shown in this or any other section of the service record.

A soldier who makes allotments to his family or to dependent relatives, or to his bank or to pay his premiums on commercial insurance does so by a Class E

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allotment. When this is done, the proper notation must appear in the section provided for these allotments. Authorization is made on WD, AGO Form No. 29 and a discontinuance on WD, AGO Form No. 30 or WD, AGO Form No. 30-S in case of separation from the service. The time element is listed as 'indefinite' months. The allotment must commence on the 1st day of the month and be discontinued effective the last day of the month. The name and grade of the forwarding officer is that of the personnel officer. The acknowledgment of discontinuance is left blank. This same section, properly modified, is also used for the purpose of recording Class F deductions (the family allowance) and the Class B allotment (War Bonds). Application for the Family Allowance is made on WD, AGO Form No. 625 and any change therefrom on WD, AGO Form No. 641. Application for the Class B allotment is made on WD AGO Form No. 29-6 and discontinued on WD AGO Form No. 30.

Government life insurance has been replaced for the men coming into service during World War II by National Service Life Insurance, so in most cases corrections must be made (where the word "Government" appears, enter National Service Life; where Class D deduction appears, enter class N allotment). When the insurance benefits, costs, converting features, payments, etc., have been explained to the soldier and he does not desire to purchase any insurance, the entry "No Insurance Desired" is placed diagonally across the face of the section in RED ink. The individual concerned signs on the last line of the section and the personnel officer initials the entry and dates it. This same procedure will be repeated for all troops prior to going overseas. Letters and forms pertinent to application, discontinuance, or change of insurance will be filed in the rear of the service record.

Page 11 contains a section for recording soldiers' deposits. The information to be entered here is obtained from the Soldiers' Deposit Book (WD, FD Form No. 33) and from the Soldiers' Deposits (WD, FD Form No. 10) which is kept by the Finance Department. The entries pertaining to the date, amount in figures, total amount in figures, name and grade of the finance officer and the initials of the personnel officer are self-explanatory. The amount of the deposit will be written out on the succeeding line. Partial repayments will always be made in an amount equal to any one deposit or the sum of two or more deposits. The custodian of the service record will red line all entries relating to each deposit repaid and enter the date and initial in the margin.

Pay which is detained by order of courts-martial until the end of a man's enlistment or release from the service is entered in the lower section of page 11. Detention is a valid sentence by any court-martial but a single sentence may not order detention effecting more than two-thirds pay per month for three months. Court-martial forfeitures are never shown in this section. The column headed "Month" will be used to record the date of the payroll on which the detained pay is deducted. "Voucher No." and "Accounts for" are filled out from information provided by the finance officer.

Inasmuch as clothing is now issued in kind and there is no longer any monetary clothing allowance, page 12 is obsolete and is not to be used.

On page 13, all financial matters not entered elsewhere in the service record will be shown, such as additional pay, forfeitures, partial payments, and payment of initial family allowance. Also enter there government property lost or damaged, authorizations and discontinuances of allotments, and the fact that two or more deductions are to be made from Class N allotment when it is necessary after deduction to pay a premium in advance. The upper section of page 13 is no longer used as it is for regular army reenlistment purposes. Remarks should conform as closely as possible to the remarks on the payroll. The date column on the left side of the page is used to indicate the date the remark is entered. Under the column "Roll on which Collected" is placed the month and year of each payroll upon which the man is paid. This entry is usually placed on the line following remarks affecting the man's pay for the month.

On page 15, the "Remarks-Administrative" section is provided for the entry of all administrative matters not shown elsewhere and not of a character authorizing pay. The following information is required to be shown if the entry is applicable:

1. Physical disabilities.
2. Religious preference: if "none", so state.
3. Change of beneficiary.

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4. Wounds, battles, or engagements.
5. Eligibility for the Good Conduct Medal, if the man is transferred before he meets the necessary requirements, a statement should be made as to whether the soldier is favorably considered.
6. Arrest by civil authorities (where and when the arrest occurred, the charge, and result).
7. Prescription of glasses.
8. Determination of dependency for monetary allowances.
9. The date of explanation of National Service Life Insurance.
10. Date of failure of warrant officer examination.
11. Whether or not the right of aliens to become citizens has been explained.
12. Dentures and other prosthetic appliances.
13. Awards and decorations carried forward from page 6.
14. Qualification in arms (date, arm, course, score).
15. Explanatory note of non-graduate of a specialty school.
16. "Malaria control training completed" and the date.
17. If syphilitic, the following is entered: "WD, MD Form No. 78 (Syphilis Register) is a part of this person's records."
18. If repatriated prisoner of war, it should so state as the man is not eligible for service outside the continental limits of the United States.
19. Motor vehicle driver and mechanic's award.
20. Prescription data—position of Eyeglass M1 and size of proper fitting mask.
21. Entries pertaining to ERC.
22. Transcript of academic record at ASTP school.

Indorsements on pages 16-22 are used whenever a man is transferred or detached, dropped from the rolls after one month AWOL, leaving for or returning from the United States on furlough from an oversea station, or sent to another station except as a member of an organization changing station. The first two lines are used to indicate the headquarters in which the indorsement is originating and the date. Following the word "To", commanding officer is entered and the organization to which the man is going. "This soldier was transferred to" is generally followed by "your command"; however, if the man went on D S or went AWOL, then the phrase is appropriately changed to read, "This soldier was (AWOL) (attached) to." The authority for the change of status together with the date of change, the last date of payment and the signature of the finance or agent officer making the payment. Under "Due United States" are entered all stoppages such as forfeitures, GPLD, (Government property lost or damaged), or reward for apprehension; however, if the man owes nothing it should be entered as 'nothing'. The last eight lines under "Due US" should indicate the class, amount and date through which the last deduction was made, for each type allotment the individual may have.

Allotment Status

| Class | Amount Deducted | Deducted Through |
|---|---|---|
| B | | |
| D | | |
| E | | |
| F | | |
| N | | |

The entries relative to Class E allotment and Class F deduction at the bottom of the indorsement should be deleted. "Due soldier at date of" (AWOL) (transfer) etc. is followed by listing what is due the soldier. Ordinarily this entry is "Current pay and allowances." It is improper to enter "See Remarks Financial." All of these entries are filled in by the personnel officer who also signs the indorsement. Character and efficiency ratings will be initialed by the company commander. The appropriate ratings for efficiency are 'superior', 'excellent', 'satisfactory', 'unsatisfactory', 'inferior' or 'unknown'. Proper ratings for character are 'excellent', 'very good', 'good', 'fair', 'poor' or 'unknown'. No entry is required following "This soldier reported."

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The final indorsement is used when a soldier is discharged, dropped from the records, placed on inactive duty, dies, or retires. It is necessary that the man's last organization be shown.

Following "Separated from the service by reason of" the particular reason is stated for example CDD or fraudulent enlistment. "Due soldier at date of discharge" is followed by mustering out pay, travel pay, detained pay, etc. The soldier then receipts for his discharge by signing and the indorsement is completed by the signature of the personnel officer.

When an officer initials anywhere in the service record for the first time, he will place his initials together with his name (printed or typed), rank, and organization on page 24.

The inside back cover is used for attaching such supporting papers as application for discontinuance of family allowance, insurance application, syphilis register, and change in beneficiary. To attach these papers there are two methods in common use: (1) stapling the papers to the cover, and (2) making a pocket by cutting off the edge of an envelope. The first method is believed to be more desirable in that the papers are more firmly affixed and reference is facilitated.

## CLOSING THE SERVICE RECORD

When the service record is closed, it is sent to the Adjutant General's Office, and once it is permanently filed, permission from the Secretary of War is needed to alter or reopen the record. A change must be based upon indisputable proof of an erroneous entry and the correction to be made.

## DISPOSITION OF THE SERVICE RECORD IN THE EVENT OF TRANSFER

It is recommended that the Service Record accompany the man concerned whenever possible. If the man is travelling in a group, the detachment commander should have custody of the records. Should the man and his service record become separated, then it should be sent on to him with all possible speed.

## TEMPORARY SERVICE RECORD

In the case cited above where the man arrives and his service record is following him, it is necessary for the organization he is with to open a temporary service record in order to pay the soldier. It is made up from a sworn affidavit and individual pay record, and across the cover of the service record is written "Temporary". Upon receipt of the old service record, the temporary record is destroyed.

## LOST SERVICE RECORD

Should a service record be lost, The Adjutant General's Office should be notified by the organization commander immediately. The Adjutant General will then open a new service record and send it to the man's original organization. From the man's original organization it will be sent through the same channels and organizations the man originally went through. Each organization fills in the information pertinent to the period the man was in the organization from extracts of the man's original service record, and thus it will finally arrive at the man's present organization up-to-date.

## EXTRACT OF SERVICE RECORD

When a man is transferred, AWOL, or changes stations, an Extract Copy (WD, AGO Form No. 25) of the service record is made out and filed with the old custodian. If the man was detached at the time of transfer, it is made out in duplicate and one copy is sent to the man's assigned organization. The extracts show the most important information contained in the service record. It is recommended that these be made out well in advance, particularly in an organization which has a rapid turnover, in order to alleviate any delay in moving men out of the organization.

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ARMY REGULATIONS: 35-1440—Loss of Pay During Absence Due to Diseases Resulting from Misconduct.
35-2600—Soldiers Deposits.
35-5520—Allotments of Pay and Deductions for Support of Dependents.
35-5540—Family Allowance—Enlisted Men.
40- 210—Prevention and Control of Communicable Diseases of Man.
345- 75—Soldiers Deposit Book and Report of Soldiers Dep.
345- 125 Service Records.
345- 470—Discharge Certificate.
345- 500—Certificate of Service.
600- 35—Prescribed Service Uniform.
600- 600—Designation of Beneficiary.
600- 750—Recruiting and Induction for the Army of the United States.
610- 15—Temporary Appointment in the AUS.
615- 5—Appointment and Reduction of NCO's and Pfcs.
615- 275—Furloughs, Passes and Delays.
615- 300—Absence without Leave and Desertion.
615- 360—Discharge: Release from Active Duty.
615- 500—Reception of Selective Service and Enlisted Men.

Technical Manual: 12-230—Service Record.

Articles of War: 58—Desertion
61—Absence Without Leave
107—Soldiers to Make Good Time Lost
110—Certain Articles to be Read and Explained

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# PAY AND PAY ROLLS

## PAY OF ENLISTED MEN

*Scope.* The following discussion deals with the pay of enlisted personnel of the Army of the United States, including those who were inducted under the Selective Service Act, the method and procedure of payment, and the types of payrolls currently in use for the payment of those personnel.

## TYPE OF PAY

### Base Pay

For the purpose of pay, enlisted men of the Army are distributed into seven base pay grades, as follows:

| Pay Grades | Rank | Pay |
|---|---|---|
| 1st | Master Sergeant or First Sergeant | $138.00 |
| 2d | Technical Sergeant | 114.00 |
| 3d | Staff Sergeant or Technician 3rd Grade | 96.00 |
| 4th | Sergeant or Technician 4th Grade | 78.00 |
| 5th | Corporal or Technician 5th Grade | 66.00 |
| 6th | Private, first class | 54.00 |
| 7th | Private | 50.00 |

### Longevity Pay

Enlisted men of the Army receive an increase of 5% of the base pay of their grade for each three years of service, up to a maximum of 30 years. In computing the time for longevity pay, time served in the active National Guard, Enlisted Reserve Corps, and time served on active duty in the Army, Navy, Marine Corps, Coast Guard, etc. will be counted, but time lost under Article of War 107 will not be included.

### Pay for Foreign Service or Sea Duty

Any enlisted man or warrant officer on sea duty or on duty, permanent or temporary, in any place beyond the continental limits of the United States or in Alaska, receives as an additional item of pay, 20% of his base pay for such duty. The increased pay for foreign service is payable from the date of departure from the United States to the date of return to the United States, inclusive. Sea duty generally applies to service on ships owned or operated by the United States Army Transport Service which proceed across the seas, as distinguished from plying in the harbors alone; and the increased pay accrues from the day of reporting on ship to and including the date of relief from sea duty.

### Pay for Distinguished Service Awards, or Medal Pay

Upon receipt of the awards of Medal of Honor, Distinguished Service Cross, Distinguished Service Medal, Distinguished Flying Cross, and Soldier's Medal, enlisted men only become entitled to additional pay at the rate of $2.00 per month for each such award from the date of the act or service upon which the award is based. If the award is given in lieu of a certificate, formerly granted however, the additional pay commences from the date of the award. Each bar added to the medal for subsequent acts or service will effect an additional increase in pay of the same amount.

### Additional Pay for Parachute Duty

Any enlisted man not in a flying pay status for whom parachute jumping is an essential part of his military duty will, while engaged upon parachute duty, receive additional pay at the rate of $50.00 per month. The enlisted man's commanding officer must certify that the enlisted man is actively engaged in parachute duty before payment will be made.

### Diving Pay

Enlisted men assigned to the duty of diving shall receive additional pay for that duty at monthly rates depending upon the rating of the diver. For example,

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a diver, second class, will receive additional pay of $10.00 per month while a master diver will receive an additional sum of $20.00 per month.

### Flying Pay

When, by orders of competent authority, enlisted men are required to and do participate regularly and frequently in aerial flights, they will receive an increase of 50% of all pay, exclusive of allowances; this includes base pay, longevity pay, foreign service or sea duty pay, and pay for distinguished service awards. However, an enlisted man may not receive flying pay and pay for parachute duty at the same time.

### Stenographic Reporter's Pay

Extra pay is given to an enlisted man detailed to serve as stenographic reporter for general courts-martial, courts of inquiry, military commissions, and retiring boards The rate is not to exceed 10 cents for each 100 words taken in shorthand and transcribed.

### Mustering-Out Pay

Enlisted men and officers whose pay grade is not above the third pay period who are discharged or relieved from active duty under honorable conditions on or after 7 December 1941 are authorized to receive mustering-out pay. Men separated from the service under the following conditions will not receive mustering-out pay: those on a retirement status receiving retirement pay; men discharged upon their own initiative to accept civil employment, unless they have served outside the continental limits of the United States; men whose total period of service has been as students under the Army Specialized Training Program; men whose total period of service has been as a cadet in the United States Military Academy; and men in similar situations. The payments vary according to the length and place of service, as follows:

1. For persons who have performed active service for 60 days or more, and have served outside the continental limits of the United States or in Alaska, $300.
2. For persons who have performed active service for 60 days or more but have served no part thereof outside the continental limits of the United States or in Alaska, $200.
3. For persons who have performed active service for less than 60 days, $100.

The above payments are made in monthly installments of not over $100 per month, the initial payment being at the time of discharge.

### Death Gratuity Payment

When an enlisted man dies on active duty from wounds or disease not the result of his own misconduct, his beneficiaries are entitled to a gratuity payment of six months' pay exclusive of allowances. The gratuity is payable to his widow, but if there is no widow, the payment will go to his unmarried children under 21 years of age. If neither a widow nor unmarried children under 21 years survive, the mother, father, brothers or sisters designated as beneficiaries by the deceased will receive the six months' gratuity. As to more distant relatives, additional evidence of their insurable interest is required.

### Monetary Allowances

Monetary Allowances in Lieu of Rations and Quarters: The general rule is that in addition to base pay and additional pay described above, an enlisted man will be entitled to receive monetary allowances in lieu of quarters and rations when quarters and rations in kind are not furnished by the Government. Monetary allowances are at present fixed at the rates of $1.80 per day for subsistence and $1.25 per day for quarters when Government mess facilities and quarters are not furnished. In emergency conditions the rates may not exceed $3.00 a day for subsistence and $2.00 a day for quarters. In any case the value of the allowance shall depend upon the conditions under which the man is serving and shall never exceed a total of $5.00 per day for quarters and subsistence.

When traveling on duty, including detentions not exceeding 31 days at any one place, a daily monetary allowance of $5.00 may be granted when quarters and rations in kind are not furnished to the enlisted man. He will be entitled to an allowance for subsistence at the rate of $1.00 per meal; and when subsistence is

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furnished and no quarters are furnished, he will be entitled to an allowance for quarters only at the rate of $2.00 per day.

Meal tickets will ordinarily be issued to the enlisted man traveling under orders when rations in kind are not furnished. These tickets will have the value of $1.00 per meal on railroad dining cars and not in excess of $.75 elsewhere. For periods of detention over 31 days while on a travel status, the station monetary allowance of $1.80 for subsistence and $1.25 for quarters will apply.

An allowance of commutation in lieu of rations to an enlisted man is granted in the cases of furloughs, delay en route, and where the enlisted man is authorized by competent authority to mess separately. The rate of commutation is announced periodically in War Department Circulars, and is currently set at $.65 per day.

Special provision is made to provide monetary allowances for quarters for dependents of enlisted personnel in the first three grades. The allowance at present is $1.25 per day, and is payable only if public quarters are not available for the dependents and only to those men who were receiving the allowance on 1 November 1943. As to this latter provision, enlisted men in this category may elect to take the family allowance as described below, or to continue to receive the quarter's allowance. If they choose the quarters allowance, they must make a Class E allotment to the dependents on whose account the allowance is claimed, in an amount not less than the amount of such monetary allowance. Once the election to take the family allowance is made, it is irrevocable. The quarters allowance is payable for dependents even though the enlisted man of the first three grades is occupying quarters furnished by the Government or receiving the quarters allowance paid when no quarters at all are available, provided of course, that by reason of orders of competent authority, his dependents are prevented from dwelling with him.

### Travel Allowances and Travel Pay

A travel allowance of 3 cents per mile may be paid to enlisted men traveling under orders when authorized by the authority promulgating such orders. This allowance is payable, when properly authorized, in lieu of transportation, or of transportation and subsistence, regardless of mode of travel.

An enlisted man finally separated from the Army, except by way of punishment for an offense or under exceptional circumstances as defined in Army Regulation 35-2560, will receive five cents per mile for the mileage from the place of his discharge to the place where he was accepted for enlistment, enrollment, or muster into the service. Men inducted under the Selective Training and Service Act of 1940, as amended, will receive travel pay from the place of discharge to the location of their local induction board. Travel pay is not subject to stoppage to satisfy any debt due to the United States or any instrumentality thereof.

### Family Allowances

The dependents of an enlisted man, regardless of grade, are eligible to receive monthly family allowances as set forth in the Servicemen's Dependents Allowance Act of 1942 as amended. The dependents are divided into three classes, each of which is entitled to different rights and benefits under the act. These classes are as follows:

Class A. Wife, child or former wife to whom alimony has been decreed.

Class B-1. Parent, brother or sister dependent upon the enlisted man for the CHIEF portion of their support ("Chief support" is construed to mean that more than 50 per cent of the dependent's income is provided by the enlisted man).

Class B. Parent, brother or sister dependent upon the enlisted man for a SUBSTANTIAL portion of their support ("Substantial support" is construed to mean that 35 per cent to 50 per cent of the dependent's income is provided by the enlisted man).

Application for the family allowance may be made by the enlisted man, by his dependents, or by some one in their behalf. Although application is optional in every case, Class A dependents can apply for and receive the allowance over the objection of the enlisted man, and Class B-1 and Class B dependents can secure the allowance only with his consent, unless it is found impracticable for the enlisted man to make application himself.

The family allowance is of two types: the INITIAL FAMILY ALLOWANCE,

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which is payable in full amount without deduction from the pay of the enlisted man if application is made within a period of 15 days after entry upon active duty on a pay status; and the MONTHLY FAMILY ALLOWANCE, which will start the month following the payment of the Initial Family Allowance.

The payments made for the monthly family allowance and the classes entitled thereto, which differ in some degree from those of the initial family allowance, are as follows:

| | | |
|---|---|---|
| To Class A dependents: | | |
| Wife but no child | $50.00 | |
| Wife and one child | 80.00 | |
| Each additional child | 20.00 | |
| Child but no wife | 42.00 | |
| Each additional child | 20.00 | |
| Former wife divorced but no child | 42.00 | (maximum) |
| Former wife divorced and one child | 72.00 | (maximum) |
| Each additional child | 20.00 | |
| To Class B-1 dependents: | | |
| One parent but no brother or sister | 50.00 | |
| Two parents but no brother or sister | 68.00 | |
| One parent and one brother or sister | 68.00 | |
| Each additional brother or sister | 11.00 | |
| Two parents and one brother or sister | 79.00 | |
| Each additional brother or sister | 11.00 | |
| Brother or sister but no parent | 42.00 | |
| Each additional brother or sister | 11.00 | |
| To Class B dependents: | | |
| Payable only while there is no allowance payable to any class B-1 dependent. This single amount is paid for all Class B dependents, regardless of number, and to split evenly among them | 37.00 | |

Initial family allowances are paid in full by the Government. In the case of monthly family allowances, a part is paid by the Government and part is taken from the pay of the enlisted man in the form of a deduction:

The Class F Deduction, as it is called, is in the following amounts:

| | |
|---|---|
| For monthly family allowance payable to Class A dependents, or Class B-1 dependents, or Class B dependents | $22.00 |
| For monthly family allowance payable to Class A dependents and Class B dependents | 27.00 |
| For monthly family allowance payable to Class A dependents and Class B-1 dependents | 27.00 |

### Election of Monthly Family Allowance

As of 1 November 1943, enlisted men of the first three grades with dependents have the election of continuing to receive the monetary allowance in lieu of quarters or of taking the monthly family allowance described above under Monetary Allowance. If the election to take the monthly family allowance is made, and the dependents of the enlisted man of the first three grades are provided with quarters by the Government, the enlisted man will have deducted from his pay the sum of $.90 per day in payment for those quarters furnished.

## ALLOTMENTS OF ENLISTED MEN

An enlisted man may authorize the deduction from his pay and the direct payment by the Government to an allottee of amounts for specific purposes. These authorizations are called allotments and are of several types.

1. Class B Allotment

Allotment of pay for the purchase of War Savings Bonds is authorized in the form of a Class B Allotment. Only one allotment is permitted to each subscriber.

2. Class D Allotment

Payment of premiums upon United States Government Life Insurance by those holding such policies may be made by means of the Class D Allotment.

3. Class E Allotment

A Class E Allotment may be made to: a. Individuals for the support of the

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alloter's family or dependent relatives; b. Banks in the United States for the support of the allotter's family or dependent relatives or for savings (including a checking account); c. Commercial life insurance companies for the payment of premiums upon commercial life insurance taken out on the life of the enlisted man.

4. Class N Allotment

Premiums on National Service Life Insurance may be paid by means of the Class N Allotment.

**Limitation on Amount of Allotment**

Enlisted men may allot so much of their base, longevity, and foreign service pay, additional pay for distinguished service awards, and also monetary allowances in lieu of quarters dependents as will leave, after all deductions have been made, a balance of $10.00 or such other amount as may be determined by their commanding officers to be sufficient for personal needs.

*General Rules Affecting Pay.* A. Date of accrual of pay upon entrance into service the date from which pay accrues is: in the case of the Regular Army reserve, the day on which accepted for active duty; in the case of enlisted men of the National Guard, the date of induction; in the case of enlisted men of the Enlisted Reserve Corps, the date when entering upon official duty; in the case of Selective Service men, the date of induction, unless immediately upon induction they are transferred to the Enlisted Reserve Corps. In this case, their pay will accrue when called to active duty.

B. Date of Accrual of Pay Upon Promotion In Grade. The increased rate of pay of enlisted men on promotion becomes effective as of the date of the instrument of appointment or the date specified therein.

C. Date of Accrual of Pay Upon Reduction in Grade. If an enlisted man is reduced by the sentence of a court-martial, the effective date of reduction is the date of the court-martial order approving the reduction. If reduced upon transfer, the effective date of the reduction is the date the transfer becomes effective. In other cases, the date of receipt of the notice of reduction by the enlisted man is the effective date of reduction unless he be absent from his station for his own convenience or through his own fault, in which cases the reduction becomes effective when received at the proper station.

D. Computation of Time For Pay. Pay is computed on the basis of a 30 day month without regard to the actual number of days in the month in question. In order to effect this principle, rules have been made to take care of specific problems which arise.

When an enlisted man enters the service on an intermediate day of the month, the month in which he entered the service is considered to be of 30 days in length regardless of the actual number of calendar days therein. For example, an enlisted man who enters the Army on 20 May will be entitled to 11 days pay for the month of May.

When an enlisted man enters the Army on the last day of the month, be it a 28, 29, 30, or 31 day month, he will be paid as if that month in fact had exactly 30 days. For example, a man who entered the Army on 31 January would receive no pay for the month of January but if he entered the Army on 28 February he would receive 3 days pay for February. The same rules apply in the case of the termination of the service of the enlisted man.

The rules governing loss of pay in the case of an enlisted man absent without leave are somewhat different from those set forth above in the case of commencement and termination of service. The day of leaving is considered a day of absence, and the day of return a day of duty, for which pay will accrue. For each day of absence one thirtieth of the month's pay will be deducted, providing the man was given the excess of 24 hours. Thus, if he goes AWOL on one day, and returns on the day after the next day, regardless of the times, he loses 2 day's pay.

If the enlisted man is absent without leave from an intermediate day of the month until a day in the following month or months, the day of absence for the purpose of pay deduction will be computed on the basis of a 30 day month. If, however, his first day of absence is on the 31st day of the month, one day's pay will be deducted; and, likewise, if his first day of absence falls on the last day of

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February and extends to the following month, he will forfeit three days' pay in a normal year or two in a leap year.

E. When Pay Will Accrue. When an enlisted man is on active duty, on authorized pass or furlough, or when he is in any status which is not, by law, inconsistent with a pay status, his pay will accrue.

F. When Pay Will Not Accrue. When an enlisted man is absent without leave for over 24 hours, he will not receive pay for the time of his absence. When he is sick not in line of duty under the provisions of AR 35-1440 for over one day, as the result of a disease attributable to the intemperate use of alcoholic liquor or habit-forming drugs, he will receive no pay for time lost from his duties. Also, if he loses over one day from his duties due to confinement resulting in conviction by civil authorities, his pay will not accrue. If the enlisted man is released before trial by reason of reparation, or if originally apprehended while absent without leave or through his own misconduct, he will, nevertheless, lose pay for the time of his absence. Likewise, in the case or forfeiture of part or all of his pay by action of a court-martial, that portion of the pay ordered forfeited will not accrue. Other cases in which pay will not accrue are set forth in AR 35-1420.

### Personal Expense Money in Lieu of Pay Forfeited

Each person whose pay, as distinguished from allowances, is forfeited for a period in excess of one month at any time pursuant to the provisions of Army Regulation 35-1440 shall be paid for necessary personal expenses the sum of $5.00 for each full month during which his pay is forfeited.

### When an Enlisted Man is Missing in Action

For twelve months after an enlisted man is missing in action full pay and allowances will accrue to his credit during this period and allotments may be increased or initiated for dependents by order of the Sec'y of War. At the end of this time a full review of the case will be made by the head of the department involved and a finding of death may be made, so as to allow a settlement of the accounts of the enlisted man. During the period in which his pay accrues, allotments made by him continue in full force and effect.

### When an Enlisted Man Overstays a Furlough

Furlough ration allowance will not be paid if the enlisted man overstays his furlough without authority unless the absence is excused by competent authority. In addition, he will lose pay from and including the day on which he was required to return. This day is considered an additional day after the days of actual furlough. For example, if an enlisted man has a furlough of 5 days, from 6 January to 10 January inclusive, he must report for duty on or before 2400 on 11 January; and if he does not report until 13 January, he will be absent without leave for 11 January and 12 January, or a total of 2 days for which he would not receive pay, in addition to losing his furlough allowance. He will not, however, lose pay for 13 January since the rule applies that the day of return is considered to be a day of duty.

### When Awaiting Trial

An enlisted man awaiting trial by court-martial or the result thereof will not be paid until the result is known, unless the Secretary of War directs to the contrary.

### Stoppages of Pay

Under the 105th Article of War, the cost of damages to private property through the fault or negligence of an enlisted man may be collected from his pay and paid to the aggrieved party on recommendation of a board of officers. In addition, the cost of arms, equipment, or other articles of Government property lost or destroyed through abuse or negligence on the part of an enlisted man, or the cost of repairs for damages done thereto, is collected from his monthly pay, usually by means of a statement of charges and report of survey. Overpayments will be charged against his pay. Ten cents per month for the maintenance of the United States Soldiers' Home is deducted each month from the pay of each enlisted man and warrant officer on the active list of the Regular Army, Regular Army

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Reserve, and Aviation Cadets of the Regular Army. This deduction takes precedence over all forfeitures and other stoppages of pay.

### Detention of Pay

By action of a court-martial, no more than two-thirds of the pay of an enlisted man may be detained for a period not to exceed three months. The pay detained is repaid to the enlisted man upon his separation from the service. Detention of pay is a form of punishment most often used by courts-martial in those cases where extenuating circumstances indicate that forfeiture, which involves complete loss of the amount forfeited, is not necessary or desirable.

## SOLDIER'S DEPOSITS

Any enlisted man in the Army not on the retired list may deposit his savings, in sums not less than $5.00, with an Army disbursing officer, who will furnish him a deposit book. Interest will be paid on deposits which have been on deposit for six months or longer at the rate of 4% per annum from the time of the deposit. There is no specified limit on the amount that may be deposited, and the deposits are free from seizure or levy by the Government except in the case of desertion. A deserter's deposits, and interest thereon, will be forfeited to the Government.

Withdrawals may be made upon discharge or transfer to an inactive status. With the approval of the regimental or separate battalion commander of the enlisted man, the deposit may be withdrawn when deemed necessary for the liquidating of important financial or contractural obligations of the enlisted man, or when an unforseen emergency arises.

## TYPES OF PAYROLL AND PAYMENTS MADE THEREON

### General Provisions

Payments will be made monthly to the enlisted men of the Army on the regular payroll on the last day of the month, unless that day should be on a Sunday or holiday, in which case payment may be made on the day following. Pay is a command function, and the Army shall be paid in such manner that the arrears shall at no time exceed two months, unless it be unavoidable.

The actual payroll is made up on War Department Forms Nos. 366, 366a, and 366b, in quadruplicate, with the enlisted men of the Regular Army and Regular Army Reserve listed first according to grade and then alphabetically within grade, and Other Components listed next, also according to grade and alphabetically within grade. The original payroll, signed by the enlisted men and the second carbon copy will be forwarded to the disbursing agent not less than 5 days before payday. The third carbon copy will be filed with the records of the organization. The personnel officer will make the required entries on the first carbon copy, which, when properly completed, will be sent directly to The Adjutant General and will be used in lieu of a roster.

All data which may affect an enlisted man's pay will be entered on the payroll; for example, information as to date to which last paid, changes in grade, absence without leave, confinement of over one day by civil authorities resulting in conviction, all authorized stoppages, fines, sentences, allotments and allowances. In addition, required certificates, as in the case of flying and parachutist pay, will be entered in the places indicated. Men on detached service and on furlough may be paid on the regular payroll, with additional remarks stating the addresses to which the checks should be mailed.

### Supplemental Payroll

The names of men joining the organization after submission of the payroll to the disbursing office, and of those men who were not paid with their organization on the designated pay day will be entered on a supplemental payroll, and the payroll will be submitted to the disbursing officer for payment . Payment is usually made on the 10th of the month following the month covered by the payroll, and the same W.D. Forms Nos. 366, 366a, and 366b are used.

### Partial Payment Rolls

Partial payments to enlisted men are also made on Forms Nos. 366, 366a, and

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366b, or on W.D., F.D. Form No. 56 (Voucher for Partial Payments, Enlisted Men), and are of two types. A conditional partial payment may be made when authorized by the organization commander, the usual case being that of a transfer of the enlisted man from the organization before the time for payment on the regular payroll. In that case, payment will be made in even dollars, in amount not exceeding the amount of accrued pay at date of payment, without deductions, provided that a sufficient balance will thereafter accrue up to and including the last day of the month to satisfy deductions for allotments, insurance, forfeitures, and other charges for the current month. Such payment is considered to be in the nature of a loan by the Government to the enlisted man, and any overage will be deducted from subsequent rolls.

A statutory partial payment is the second type of partial payment which appears on the regular payroll. It is used when the indebtedness of the enlisted man, either by forfeiture or otherwise, exceeds two-thirds of his pay. In such a case, he is given a partial payment of one third of his pay and the remark "for part pmt only" added at the end of his account on the payroll until such time as his credits equal or exceed the total of his indebtedness or he is discharged or otherwise separated from the service.

### Casual Payment

Casual payments may be made to enlisted men who are temporarily separated from their organizations. These payments are also made by use of W.D. Form Nos. 366, 366a and 366b, or W.D., F.D. Form No. 56. The paying organization will require the enlisted man to produce his Soldier's Individual Pay Record, W.D., A.G.O. Form No. 28, which was issued to him by the personnel officer responsible for the opening of the service record at the time that record was initiated. His commanding officer will require him to carry the individual pay record on his person when traveling individually or away from his organization, and at all times when outside the United States, so that he may receive casual payment from a disbursing officer after reference to the pay data contained in that record.

When casual payment has been made, the enlisted man's organization commander at his home station will be notified on W.D., A.G.O. Form No. 19 (Notice of Casual Payment) so that the proper entry may be made in the enlisted man's service record. Upon the return of the enlisted man to his home station the service record and the indicated payment set forth on the individual pay record will be compared, and any necessary adjustment will be made on a subsequent payroll.

### Final Statement

Upon his discharge from active service and until present stocks of these forms are exhausted, each enlisted man will be furnished a Final Statement in duplicate (W.D. Form No. 370), properly certified by his organization commander. It will then be submitted to the disbursing officer for payment. The pay data entered thereon will be taken from the service record and should include all necessary information, including the amount of deposits and the sum to be paid the enlisted man on separation from the service.

### Final Payment Roll

In lieu of the final statement, a final payroll may be used (W.D. Forms 371 and 371a) when a considerable number of men are being discharged on the same day from one organization.

### Pay Day Procedure

The enlisted men sign the original payroll on the 15th of the month, and the original and second carbon copy are prepared and certified by the personnel officer, they are forwarded to the finance officer at least five days prior to the scheduled pay day. The finance officer red-lines those men who for any reason are not to be paid on the regular pay day. The signature spaces for those men who are not to be paid in cash, as in the case of men absent on furlough or detached service, are lined out, and the actual cash payments are prepared by the finance officer either in individual payments in envelopes or in bulk.

The actual payment of the money is usually made in the orderly or day room of the organization by the organization commander, who has been appointed by a special order as a Class A Agent Officer for that purpose. As a Class A Agent

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Officer, the company or organization commander makes arrangements with the Finance Department to pick up the money, and he is solely responsible for making payments to his men and for safeguarding the money received. It is necessary, therefore, for that officer to have an adequate guard and to hold the pay at all times in his personal possession until it is completely disbursed.

At the pay table is another commissioned officer, usually a member of the organization, who is familiar with the men being paid. He is called the witnessing officer. It is his duty to identify the payees, and, after payment, to execute the witnessing officer's certificate on the original and the second copy of the payroll certifying that he witnessed the payment. As for those men not paid he will mark "not paid" opposite their names and add his initials.

Before making payment, the first sergeant arranges the men to be paid in the order in which they appear on the payroll. The commanding officer then calls the name of each man to be paid; the soldier steps forward to the pay table, salutes, gives his name, receives his pay and withdraws without saluting again. He should count the money received before leaving the room, however, in order to correct immediately any possible mistake.

After the payment to all men present and in the hospital is completed, the organization commander will balance his accounts and return all unpaid money together with the original and second carbon copy of the payroll to the Finance Department within 24 hours. At the Finance Office the names of those men who were for any reason not paid will be red-lined. The third carbon copy is returned to the personnel officer so that he may make the necessary entries in his records.

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## PAY OF OFFICERS

**General.** Pay and allowances of Army officers are outlined in the United States Pay Table shown below.

It will be noted that in contrast to the pay grades of enlisted men, the lowest pay grade (period) for officers is number 1 and the highest is number 6. Pay and allowances will be paid to officers monthly on the last day of the month. Prior to that day, the officer will have certified, by signature, his monthly pay voucher (Pay and Allowance Account—WD Form No. 336) which is a statement of all conditions affecting the pay he is to receive for that month. This Pay and Allowance Account is then submitted to the disbursing officer of the Finance Department for payment and payment will usually be made by check, and will be either delivered to the officer himself or to a bank of his own choosing.

The aforementioned pay table indicates the base and longevity pay for the various pay grades. The base pay depends on the pay period of the officer, which is determined by his grade and length of service.

All prior service in any component including the National Guard and inactive reserve is used to determine the pay period for all but general officers. For example, a first lieutenant with 8 years of service will be in the 2nd pay grade (period) and draw pay of $183.33 per month, plus rental and subsistence allowances as indicated in the U. S. Army Pay Table.

**Additional Pay**

In addition to his base pay an officer may receive additional pay for various reasons as follows:

1. Any officer on duty, either temporary or permanent, in any place beyond the continental limits of the United States or in Alaska, or on sea duty, receives as an additional item of pay, 10% of his *base pay*.
2. Any officer or warrant officer who is currently eligible to receive parachute pay will receive $100 per month.
3. Any officer or warrant officer on a flying pay status will receive an increase of 50% of all pay. An officer may not receive flying pay and pay for parachute duty at the same time.
4. An officer or warrant officer will receive additional pay of $2 per month for a distinguished-service award only when that medal was awarded to him as an enlisted man, and in lieu of a certificate of merit.
5. Any officer or warrant officer required to make frequent glider flights will receive in addition, 50% of pay (including base, longevity, foreign-service or sea-duty, and medal pay), up to $100 a month.
6. Any officer or warrant officer required to perform hazardous dives, or dives of over 90 feet, will receive $5 per hour additionally.

**Allowances.** For rental and subsistence allowances, see the pay table.

When an officer or warrant officer is traveling under competent orders, without troops, he may receive up to 8 cents per mile for transportation. Also, if he is to be traveling on duty, he may receive up to $7 per diem for meals, tips. quarters, etc.; his orders will specify the amount.

**General Rules.** The rules which affect pay of officers and warrant officers, and the statutes in which pay will accrue, are the same as for enlisted men. Stoppages, however, may be made against an officer or warrant officer only on order of the Secretary of War, or when an indebtedness is admitted by the man concerned or shown by judgment of a court.

In addition to court-martial forfeitures. an officer below a major may be required to forfeit up to ½ of one month's pay as a disciplinary measure by a commanding general officer under the provisions of AW 104. Detention of pay may not be imposed on officers or warrant officers and, likewise, they are not

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## MONTHLY RATES OF PAY AND ALLOWANCES FOR OFFICERS

| | Years of Service for Pay Period | | | BASE AND LONGEVITY PAY | | | | | | | | | | | ALLOWANCES | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Base pay | INCREASED PAY FOR SERVICE | | | | | | | | | | With Dependents | | Without Dependents | |
| | Under | Over | Pay Period | Less 3 years | Over 3 years | Over 6 years | Over 9 years | Over 12 years | Over 15 years | Over 18 years | Over 21 years | Over 24 years | Over 27 years | Over 30 years | Sub. (30 day mo.) | Rental | Sub. (30 day mo.) | Rental |
| General [1] | | | | | | | | | | | | | | | | | | |
| Lt. General [2] | | | | | | | | | | | | | | | | | | |
| Maj. General | ------ | ------ | ------ | 666.67 | $666.67 | $666.67 | $666.67 | $666.67 | $666.67 | $666.67 | $666.67 | $666.67 | $666.67 | $666.67 | 42 | 120 | 21 | 105 |
| Brig. General | ------ | ------ | ------ | 500.00 | 500.00 | 500.00 | 500.00 | 500.00 | 500.00 | 500.00 | 500.00 | 500.00 | 500.00 | 500.00 | 42 | 120 | 21 | 105 |
| Colonel | 30 | 30 | 6 | 333.33 | 350.00 | 366.67 | 383.33 | 400.00 | 416.67 | 433.33 | 450.00 | 466.67 | 483.33 | 500.00 | | | | |
| Lt. Colonel | ------ | 30 | 6 | | | | | | | | | | | 500.00 | 42 | 120 | 21 | 105 |
| Lt. Colonel | 30 | ------ | 5 | 291.67 | 306.25 | 320.83 | 335.42 | 350.00 | 364.58 | 379.17 | 393.75 | 408.33 | 422.92 | | | | | |
| Major | ------ | 23 | 5 | | | | | | | | 393.75 | 408.33 | 422.92 | 437.50 | 63 | 120 | 21 | 105 |
| Major | 23 | ------ | 4 | 250.00 | 262.50 | 275.00 | 287.50 | 300.00 | 312.50 | 325.00 | 337.50 | | | | | | | |
| Captain | ------ | 17 | 4 | | | | | | 312.50 | 325.00 | 337.50 | 350.00 | 362.50 | 375.00 | 63 | 105 | 21 | 90 |
| Captain | 17 | ------ | 3 | 200.00 | 210.00 | 220.00 | 230.00 | 240.00 | 250.00 | | | | | | | | | |
| 1st Lt. | ------ | 10 | 3 | | | | 230.00 | 240.00 | 250.00 | 260.00 | 270.00 | 280.00 | 290.00 | 300.00 | 42 | 90 | 21 | 75 |
| 1st Lt.[3] | 10 | ------ | 2 | 166.67 | 175.00 | 183.33 | 191.67 | | | | | | | | | | | |
| 2nd Lt. | ------ | 5 | 2 | | 175.00 | 183.33 | 191.67 | 200.00 | 208.33 | 216.67 | 225.00 | 233.33 | 241.67 | 250.00 | 42 | 75 | 21 | 60 |
| 2nd Lt. | 5 | ------ | 1 | 150.00 | 157.50 | | | | | | | | | | 42 | 60 | 21 | 45 |

[1] Chief of Staff and officers with the rank and title of general entitled to pay and allowances of a major general and to a money allowance of $2,200 per year.

[2] Lieutenant general entitled to the pay and allowances of a major general and to a money allowance of $500 per year.

[3] Contract surgeons on full time entitled to pay and allowances of 2nd pay period.

### ADDITIONAL PAY

FLYING PAY—50% on base, longevity, medal, etc. and foreign-service or sea-duty pay.

RATING AS PARACHUTIST—$100 per month.

FOREIGN SERVICE OR SEA DUTY—10% on base pay only.

DISTINGUISHED SERVICE MEDAL (cert. of merit as EM)—$2 per month.

AIDE: An aide to a major general (Capt. or below) $200 per annum; to a brigadier general (1st or 2nd Lt.) $150 per annum.



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eligible to receive Class F family allowances, although they may execute Classes B, E, N, and D allotments of pay.

Officers below the grade of major and warrant officers receive the same mustering-out payments as do enlisted men provided they are otherwise eligible: either, $300, $200, or $100, depending on their length and place of service. The survivors of all officers and warrant officers receive the same death gratuity as the survivors of enlisted men: 6 months' pay, exclusive of allowances.

**Base and Longevity Pay of Warrant Officers and Flight Officers.** Warrant officers (junior grade) and Flight officers receive the pay and allowances of the first pay period. Chief warrant officers normally receive $2100 a year, and the allowances of the second pay period. However by order of the Secretary of War, a chief warrant officer may receive pay as high as that of the fourth pay period. In no instance may a warrant officer or flight officer ever receive over $458.33 per month. All warrant officers and flight officers receive an additional 5% for each 3 years of service.

**Agent Finance Officers.** When the finance officer finds it impracticable to make payments in person to troops, due to the delay which would result, agent officers will be detailed to make such payments. There are two classes of agent officers:

A Class A Agent Officer must either be a commissioned, warrant or flight officer. Class A officers are detailed by local commanders and are authorized to make such payments as their appointing order specifies. If the appointing order so states, agent officers may be detailed for an indefinite period of time.

Class B Agent Officers may be commissioned, warrant, or flight officers and are detailed by the War Department or local commanders. These officers are detailed for a specified period and given a sum of money from which they make authorized payments. An officer with a small isolated detachment may be detailed a Class B Agent Officer for the purpose of paying troops and making local purchases.

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35-1490—Foreign Service and Sea Duty—Increase in Officers Pay
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35-1620—Pay of Officers—General Provisions
35-1640—Pay of Officers—Rates
35-1660—Payment of Officers on Promotion
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35-1760—Pay of Retired Commissioned Officers
35-1800—Stoppages and Forfeitures of Pay of Officers
35-3420—Pay and Allowances, Officers' Reserve Corps, Enlisted Reserve Corps, and Officers, Army of the United States.
35-4220—Subsistence and Rental Allowances for Commissioned Officers
35-4820—Travel Allowances of Commissioned Officers

## MILITARY CORRESPONDENCE

**General.** From the Civil Service clerk at her typewriter in the Pentagon Building to the corporal in the orderly room on the Persian Gulf, Army correspondence pours forth at the rate of hundreds of thousands of communications every week. Surprisingly enough, if we were to examine the professional stenographers' letters and compare them with those of the Army trained company clerk, the form and style would be almost identical. All Army clerks, civilian and military, use as their guide in military correspondence Army Regulation 340-15 as supplemented by Technical Manual 12-253. This Technical Manual covers the subject thoroughly and applies to all correspondence whether it originates in the War Department or in an Ordnance Bomb Disposal Squad. Uniformity in correspondence is essential if we are going to communicate by written word from one corner of the globe to the other without confusion and misunderstanding.

The clerk who had experience writing business letters finds upon approaching "the Army method" that as far as the style of writing is concerned there is very little to learn. Anybody who can write a good clear business letter has nothing

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new to learn about style in order to write a good military letter. The general rules of correspondence taught at the Army clerk's school are the same as those taught at a business college. The old stilted Army style of writing only in the third person no longer applies to every military letter, and correspondence has become more personalized depending upon the subject matter.

At the very beginning of Army Regulation 340-15 all correspondents are advised that wherever possible correspondence should be avoided if personal conference or telephonic communication is possible. Whenever it is necessary that the communication be written, the regulation enjoins "brevity consistent with clarity." Of course, in endeavoring to be brief the correspondent must not go to the extreme of being so brief that the message cannot be understood or possibly might be misunderstood. Communications of this nature just cause more writing for clarification and nothing is gained.

In line with keeping written correspondence to a minimum the cooperation of all correspondents is necessary on the matter of prompt replies to all communications received. It is a recognized custom of the service that a reply should leave the office of receipt within twenty four hours. Of course, some letters just cannot be answered within that time. In that case a short notification of receipt and the date on which a full reply can be expected should go out as soon as possible. Otherwise, a delayed reply may cause the originating headquarters to send out a tracer together with a copy of the original communication through channels requesting a statement of the reason for the failure to reply. Besides putting the recipient on the spot, it also entails more correspondence and more time at the typewriter.

Normal rules of grammar, punctuation, and spelling apply to all military correspondence. There is no special "Army Grammar" and only in rare cases does the Army spelling differ from accepted civilian spelling. Four Army exceptions that will appear in most letters are the words "inclose", "inclosure", "indorse", and "indorsement".

Military communications include military letters, memoranda, reports, indorsements, telegrams, radiograms, and cablegrams. Orders, bulletins, and circulars are covered in another Army regulation, but the general rules mentioned above are applicable.

In any civilian business, letters from subordinates leaving the office are usually checked by one of the executives if they affect the good name of the firm. The same procedure is mandatory in the Army, and we call it "channels of communication". Army Regulation 340-15 devotes one paragraph to a definition of "channels". It is as follows:

"*General.* Communications relating to the initiation of new or changes in existing policies and regulations, or those requiring decision or action affecting the command as a whole, will be routed through the normal military channels of command. Communications, other than the above, routine in nature, whether from a subordinate to a superior or vice versa, may bypass intermediate headquarters whenever it is apparent that intermediate headquarters are not interested and no action by them is required. Communications will not be routed through a headquarters which has no interest in the matter and which is not expected to intervene therein. Direct communication is to be used whenever it is obvious that such procedure will result in expediting action. Communications for service command headquarters and tactical units, to include division headquarters or smaller units, will be addressed to the commanding general or the commanding officer of the headquarters concerned, with a notation inviting attention of the appropriate subdivision therein."

Most commanding officers demand strict observance of channels of communication. The officer initiating the correspondence is responsible that it is directed through the proper channels. Section II of the regulation should be consulted to see if the proper channel for the particular type of correspondence is mentioned. The standard operating procedure of the unit regarding channels of communication should also be read. Generally, there are two military channels, normal military and direct or technical channels. All communications must be studied carefully to make sure that no one is bypassed who has an official interest and responsibility in the matter under discussion. The Ordnance officer who finds that a great deal of his technical correspondence falls into technical channels should route the technical correspondence straight through. Each communications channel must be

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decided upon separately after noting if it touches upon the prerogatives of command.

**Military Letters.** There are certain general rules as to form that apply to all military correspondence. Unlike many business letters, only one subject will be covered in a single military letter. If there are two separate matters to be dis-

Mil Adm, OS, APG, Md, 16 Feb 45

Margin 1"

386TH ORDNANCE COMPANY (MM) JMS/cbm
800TH MAINTENANCE AND SUPPLY BATTALION
Fort White, Maryland

2→ 12 May 1945

2→ 27/45

2→ SUBJECT: Request for Organization Swimming Privileges

2→ TO: Commanding General
Fort White, Maryland

4→

1. It is requested that permission be granted the officers and enlisted men of the 386th Ordnance Company (MM) to use the swimming area on the northwest boundary of Block 68. This area was used as a bathing beach until 1944 and is clean and well suited for this purpose.

2→ 2. Adequate recreational facilities are not available for this organization because of the location of the company area. Completion of the training program on 30 May 1945 will allow more free time for athletics prior to departure for a staging area.

Margin 1½" 5→ John M. Silver Margin 3/4"

2 Incls JOHN M. SILVER
1. Plan for Proposed Swimming Area Capt, Ord Dept
2. Proposed Water Safety Rules Comdg

½"

353.8 1st Ind HMP/baw

2→ Hq, 800th Maint and Sup Bn, Fort White, Md, 12 May 45

2→ TO: CG, Fort White, Md

2→ 1. Approved.

2→ 2. The company area of the 386th Ord Co is located three miles from the recreational facilities available to the other organizations of this command.

5→ Homer M. Pink

2 Incls HOMER M. PINK
n/c Maj, Ord Dept
Comdg

Margin 1½"

cussed with another headquarters there should be two letters dispatched, even though they may be sent under the same cover. This practice is necessary so that filing may be quickly accomplished and so that the receiving headquarters may dis-

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patch each letter to the particular section of the headquarters that handles it without having one section wait until another has completed its portion of the answer. For detailed information on forms of military letters, refer to Technical Manual 12-253 entitled 'Correspondence'.

Margin 1½"

353.8 2d Ind HEM/haw

Hq, Fort White, Md, 14 May 45

TO: CO, 800th Maint and Sup Bn, Fort White, Md

1. Disapproved.

2. Attention is directed to par 7, Memorandum No 68, Hq Fort White, dated 21 Mar 45, subject: "Swimming". Bacteriological tests of water from Brown River indicate the presence of harmful bacteria in large numbers. No swimming will be permitted in the waters adjacent to this reservation until further notice.

3. Transportation to the main recreation area is available to members of the 386th Ord Co on request to the Transportation Officer. Additional use of organization athletic equipment and designation of an athletic officer are directed.

BY COMMAND OF MAJOR GENERAL RED:

Henry E. Mauve

1 Incl
Withdrawn 1 incl—Incl 1

HENRY E. MAUVE
Capt, Ord Dept
Adj

Margin 1½" Margin 3/4"

½"

353.8 3d Ind GBG/baw

Hq, 800th Maint and Sup Bn, Fort White, Md, 15 May 45

TO: CO, 386th Ord Co (MM), Fort White, Md

1. For compliance with 2d Ind.

2. A report of action taken to provide a complete athletic program will be made to this headquarters. The athletic officer appointed from the 386th Ord Co will coordinate his recreation program with that of the athletic officer of this battalion.

BY ORDER OF MAJOR PINK:

George B. Green

1 Incl
n/c

GEORGE B. GREEN
2d Lt, Ord Dept
Adj

2

1" Margin 1½"

**Messageform.** For messages requiring immediate reply, and ones which may justify the use of electrical means of transmission, the messageform blanks may be used. These blanks replace the old immediate action letter. The 8 by 10½ inch paper is printed with a red border and spaces to fill in the information required in

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the heading of a military letter are already printed in the upper third of the page. The space for the address is so arranged that the letter may be mailed in window envelopes, if available. A special envelope bearing the words "Essential Military Mail" will be used to transmit messageform letters. These letters are given a priority by the postoffice. The blanks may also be used to write out cablegrams and telegrams, and a portion of the heading is printed so that the writer may indicate the means of transmission. The preparation of messageform mail will be the same as prescribed for telegrams, radiograms, and cablegrams.

**Telegrams, Radiograms and Cablegrams.** These messages will be typewritten whenever possible. All words will be typed in upper case letters and all lines will be double spaced. Every effort will be made to be concise without sacrificing clarity. Standard authorized abbreviations may be used to indicate the addressee and, if necessary, to designate the official position of the sender. Certain War Department symbols used to denote higher headquarters and special abbreviations recognized for use in special orders may also be used. When a reply is requested the words, "reply requested," should be made a part of the message. Most numbers are written out. Sums of money are written out rather than by numerals. The message always is completed with the word "end" and all punctuation is always spelled out. The word "stop" is used instead of "period".

Sometimes it may be possible to send a letter with a "suspense date" on regular red-bordered "suspense date" paper employing the usual military letter style and get the reply in time for necessary action. "Suspense date" letters are those which require that the recipient get a reply into the hands of the originator by a certain named date. Electrically transmitted messages and "suspense date" letters should only be resorted to when absolutely necessary. If the practice, in some headquarters, of sending all messages either messageform, "suspense date" or by wire, should spread then no mail will receive the prompt reply expected by the regulation.

**Carbon Copies.** TM 12-253 states that letters will ordinarily be made with two carbon copies. Frequently that number is insufficient and the addition of one or two more pieces of paper and carbon may in the longer run save a great deal of additional correspondence. Before deciding on the number of copies of each letter that will be supplied, reference should be made to the local ground rules. Each commanding officer may have his own idea on the subject of copies of correspondence. Also, consideration should be given to the number of offices which should have copies of the correspondence in their files for ready reference and how many individuals will require copies. The two prescribed by the regulation will usually be sufficient.

**Filing Military Letters.** Two separate filing systems are used by the Army. All headquarters above the company use a Dewey Decimal System of filing. Under this system, the subject matter of the paper filed determines its classification, its file number, and its location in the file. There are nine subject classes, for example 000-general, 100-finance and accounting, 200-personnel, etc. Within each numbered class a further breakdown of the general subject is made before and after a decimal point. The higher the headquarters, the more detailed the breakdown will have to be. All higher headquarters should have a copy of the "War Department Decimal File System (revised)," published by the U. S. Government Printing Office. It can be used for reference in constructing their files. A typical example of a file number 201.61 can be broken down as follows: 200-personnel, 201-personnel records, 201.61-efficiency reports.

Companies and similiar organizations use a simple file system described in Army Regulation 345-620. All correspondence is filed in manila envelopes 9½ by 12½ inches with the index in the front as indicated below. All correspondence is numbered serially for each calendar year, using additional envelopes whenever necessary. The file or serial number is marked plainly on the correspondence in the upper right corner of the first page. Letters are filed numerically without folding.

| *File No.* | *Date* | *Subject* |
|---|---|---|
| 1. | | |
| 2. | | |
| 3. | | |

..... .....

Company Regt

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Envelope No. .....
From File No. ..... ..... .....19 ..... to
File No. ..... ..... 19.....

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AR 345-620—Correspondence File
How to Write a Military Letter—Cpl. D. Klein, Military Service Publishing Company, 1944.
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AR 850-150—Authorized Abbreviations and Symbols
Administrative Regulations of the Ordnance Department, Correspondence, How Conducted.
Technical Manual 12-253—Correspondence.

## MILITARY ORDERS

**General.** Military orders are of several classes and can be published in oral or written form. Actually, there are only two circumstances when a written order must be used; that is, when public monies are to be expended and when appointing a board of officers. However, to avoid confusion and to expedite administration, oral orders normally are used for only the less important matters such as announcing company details.

Orders in the United States Army fall into two large groups; combat orders which are discussed elsewhere in this volume and routine orders. Routine orders of units down to and including separate battalions are further broken down into special orders, general orders, special court-martial orders, general court-martial orders, letter orders, bulletins, circulars and memoranda. Routine orders issued by units below a separate battalion, as a battalion within a regiment, or a company, detachment or similar unit, will be designated as "Orders" without the term "Special" or, "General". All orders are numbered in a single series for a calendar year.

The commander responsible for the action taken is the issuing authority for an order. Orders may be signed by the commander in all cases, but more often will be signed by a subordinate in his name. All orders can be broken down into four parts, that is, heading, designation, body, and authentication. However, orders also differ greatly. This can be seen in a study of the following types.

**General Orders.** General orders usually include matter of importance which is directive in nature (It tells you to do something); general in application (It applies generally to everybody within that command); is of permanent duration (It lasts until it is revoked by a new order); and not susceptible to immediate incorporation in established forms of regulations. The following are a few of the most frequent purposes for which general orders are used: To announce the activation of a regiment or higher unit; to announce the closing of a headquarters and the opening of a new headquarters; to announce the assumption of command by an officer; to announce the personal staff of a general officer; to announce changes in the geographical divisions of command within the military establishment; and to promulgate post or geographical regulations or amendments to them.

The heading on a general order will be centered at the top of the page and show the unit which is issuing the order and the geographical location and the date, thus:

HEADQUARTERS FORT BLANK

Fort Blank, Maryland,
1 July 1943.

Following the heading will be the designation. The following is an example:

GENERAL ORDERS NUMBER 86

The body of a general order in a case which covers more than one subject will be broken down into sections. The sections are numbered with Roman numerals and each section is given a title that is printed in capitals, such as, "Section I. ASSUMPTION OF COMMAND" or, "Section III. CHANGE IN UNIFORM". Under each section any number of paragraphs may be used in order to


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clearly state the order. If a section contains more than one paragraph each will be numbered with an arabic numeral. The fourth component consists of three parts, but the three taken together constitute the authentication. First, there is the order line or command line—that is the line which reads, "BY ORDER OF COLONEL BLANK" or, BY COMMAND OF MAJOR GENERAL GREEN". Why is one, "By order of, and the other "By command of" Paragraph 13a, Army Regulation 310-50 prescribes that all orders issued from a headquarters of which the commander is below the grade of brigadier general will be "BY ORDER OF" and those issued from the headquarters of a general officer will be "BY COMMAND OF." Regulations now prescribe that the complete command line be written in capital letters. In a technical unit commanded by a general officer which has a general staff group, the name, grade, arm or service, and the title of the chief of staff will be typed below the command line. In the lower left of the page is written the word, "OFFICIAL" followed by a colon, and below that is typed the name, grade, arm or service and title of the adjutant general, assistant adjutant general, or acting adjutant general of the command. If the commander is below the grade of general officer, or if the command does not have a general staff group, orders will be authenticated by the adjutant, his name appearing twice; once where, in a command having a general staff group, the name of the chief of staff would automatically appear, and once below the word "OFFICIAL". The authentication is not complete without the actual authentication or signature of the adjutant general or duly appointed assistant or the impression of the official seal of the headquarters issuing the orders. Where orders are mimeographed, the signature may be written on the stencil with a stylus.

**Special Orders.** Special orders pertain to individuals and groups constituting any part of the command. Considering the definition given for special orders, it may be said that special orders are directive in nature, individual or personal in application, and are either temporary or permanent in duration.

Appointment, assignment, promotion, transfer, release, discharge and retirement of officers and enlisted men, warrant officers and members of the Army Nurse Corps, are accomplished by special orders. Officers and enlisted men are placed on detached service and special duty by special orders. Courts-martial and officer boards are all appointed by special orders. Staff officers are detailed by special orders. In fact, almost everything which effects a change in status or duty of officers or enlisted men, is effected by special order except the appointment and reduction of a private first class which are accomplished by "Orders". Special orders contain the four components which are common to all orders; that is the heading, designation, the body and the authentication. The heading, the designation, and the authentication will normally be the same as given for general orders except that everything will be abbreviated wherever possible; for example: the heading might read "5TH INF REGT"; the designation Special Orders Number 63. In the authentication the words will be abbreviated as, "BY ORDER OF COLONEL GREEN" or, "BY COMMAND OF MAJOR GENERAL JONES". The body of the order is that one of the four components which tells what is to be done; who is to do it; when, where, how and why. All those six essential elements must be expressed or implied in the body of the special order. Under peacetime practices orders were often heavy with qualifying phrases and with clauses which left no possibility of misunderstanding. Now, however, under the pressure of actual war and the urgent necessity for streamlining every administrative procedure, a shorter form has been adopted using abbreviations and symbols in the place of stock phrases and words. While the shorter form of order is to be used wherever possible, the fundamental principles which govern all military directives must not be violated. That principle is that all orders must be complete, concise and subject only to the interpretation desired by the commander. For example: MAJOR JOSEPH A. BROWN 0-1548482 Ord is aptd Regt Claims O and is atzd to act as a board of one O under AW 105. Auth: Par 7c AR 25-20 dated 15 Mar 1943. While it is highly desirable to reduce to a minimum the number of words, sentences and lines of written or typed matter which makes up an order, the urge for brevity must not be allowed to overshadow the necessity for clarity. In using abbreviations it is important that the abbreviations do not permit the order to be interpreted in two or three ways. If abbreviations can not be used without laying the order open to two or more constructions, they should not be used.

**Court-Martial Orders.** General Court- Martial Orders and Special Court-Martial

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Orders are used to promulgate the findings and sentences of Special and General Courts-Martial. Such orders are issued only by officers having general and special court-martial appointing powers or who have the authority to initiate and review the proceedings of such courts.

**Letter Orders.** Occasionally an order involving individuals is directed by letter rather than by special order. Such an order is called a letter order and follows the rules pertaining to military correspondence so far as form is concerned. It must be remembered that the six essential elements must be contained in the letter just as they would be in a special order. Letter orders are sometimes used to grant an officer leave; to appoint an investigating officer; to direct a secret mission; or to accomplish similar directives which can be effectively handled in this manner rather than publish them as an extract to a special order.

**Bulletins.** Bulletins are used to announce matter which is informative or advisory in nature and of permanent duration. They are used to announce Acts of Congress (W. D. Bulletins) and executive orders of the President of the United States. They are also used to announce general informative material such as fiscal policy, insurance, etc. The three parts of any order are found in bulletins and are similar to those for any other order.

**Daily Bulletins.** Daily bulletins are usually published by headquarters down to and including regiments and separate battalions. They constitute daily information sheets and normally contain an official section and an unofficial section. Such things as changes in memoranda and announcements of the officers of the guard will be found in the official section. In the unofficial section such matters as announcements concerning lost dogs, theatre schedules and weather forecasts may be found.

**Circulars.** Circulars are directive in nature, temporary in duration and general in application. They are used to change Army Regulations or to form any changes of policy before incorporation in an Army Regulation. The authentication is similar to that for any other orders.

**Memoranda.** Memoranda may be published either in a numbered or an unnumbered series. Normally, if the memorandum is one that will have to be referred to or complied with in a written communication it should be published in the numbered series. They are directive or advisory, or informative in nature. They may be either temporary or permanent in duration and either special or genral in application. They are less formal and permanent than a general order, although the heading, the body and the authentication is usually the same as for other types of orders.

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## MISCELLANEOUS ADMINISTRATIVE PROBLEMS

### MESS MANAGEMENT

**General.** The importance of subsistence in the theater of operations cannot be overemphasized. The fighting soldier must be fed special foods for different types of operations, at the time and place he needs them.

The principles of mess management have gone a long way since the time when the warrior was expected to forage for his food. Bataan and Corregidor were relinquished only after the ravages of malaria, dysentery, beri-beri and scurvy had taken a greater toll than the enemy, despite his superiority in men and weapons. Fighting foods take their rightful place along with the fighting weapons in every operation.

The logical consideration of mess management will reveal that it can be divided into three distinct but definitely allied phases.

1. Mess Problems in Garrison.
2. Mess Problems in the Field.
3. Mess Problems in Combat

**Mess Problems in Garrison.** Never forget that mess management is a function of command. Most of a commander's time will be devoted to training and preparing

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his unit for that day "when the chips are down". While it is true that the actual supervision of the mess may be delegated to a junior officer, the sole responsibility for its proper conduct can never be evaded or waived. The commanding officer remains in a supervisory capacity. Immediate control over the mess is exercised by the mess officer, assisted by the mess sergeant, cooks and kitchen police.

Selection of the Mess Officer. An officer who is intelligent, resourceful and conscientious in any assigned task will make a good mess officer. Pride of accomplishment and the will to learn the job and carry it out efficiently should be sufficient incentive. The delegation of this duty will provide a closer supervision over the mess and benefit junior officers by giving them practical experience in mess management. For these reasons this assignment should be rotated. In order to assure that the mess is being run properly, the commanding officer should insist that the duties of the mess officer be carried out specifically.

**Duties of the Mess Officer.** The objective of mess management is the proper preparation of food. While the food obtained by the Army is of the highest quality obtainable, all the care in selecting, storing, distributing and handling may be made entirely useless unless corresponding care is taken with the food in the unit mess. Problems of mess management include:

1. Sanitary control of the mess such as:

Sanitation of mess buildings, inspection of food when received, storage of food to prevent deterioration, cleanliness of mess utensils and equipment, disposal of kitchen wastes, character of food served, methods of serving food, physical examination of food handlers and training of mess personnel in mess sanitation.

2. Responsibility for equipment.
3. Inspecting the kitchen, mess hall, equipment, personnel, storeroom, food and at least one prepared meal while being served, daily.
4. Checking supplies received and special attention to insure the proper quality of the food.

Looking for evidence of deterioration, spoilage, or contamination and reporting it to the proper medical authorities. Do not use articles suspected of being spoiled.

5. Keeping an inventory of supplies.
6. Checking on mess accounting.
7. Seeing that the men in the mess are well satisfied.
8. Preventing waste and spoilage.
9. Aiding in the planning and preparation of menus to secure a well-balanced and sustaining diet when menus are not supplied by higher echelons.
10. The economical and efficient use of rations.
11. Supervising of mess personnel and continuous training of new personnel.
12. Advance planning combined with timely preparation.

**Duties of the Mess Sergeant.** The mess sergeant is one of the most important men in the organization since he is directly in charge of everything that goes on in the mess, although he is ultimately responsible to the mess officer. Some of his duties are:

1. To command the mess detail.
2. To take charge of the storage and expenditure of food.
3. To supervise the issue of food.
4. To supervise the dining room.
5. To check the kitchen equipment and keep it in serviceable condition.
6. To be responsible for cleanliness of all personnel, food and equipment.
7. To render reports and keep accounts required by regulations.
8. To train the cooks.

**Duties of the Cooks.** A good cook must be intelligent, diligent and patient. He should have a natural talent or liking for his work. The cooks constitute the foundation of the mess, and if a man does not have the attributes mentioned, he may soon tire of the work and become more of a detriment than an asset to the mess. The cook's duties are:

1. To be responsible for the preparation and serving of all meals.
2. To be responsible for the cleanliness of the kitchen.
3. To remain in the kitchen during the serving of the meals.

**Inspection of the Mess.** To ascertain that rigid requirements are being met, the organization commander should inspect the mess daily. He should be well acquainted with the mess equipment, cooking and the preparation of menus. A

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mere glance through the mess hall and a perfunctory inspection will eventually lead to laxness and its attendant difficulties. If the organization commander will bear in mind that a soldier ill or dead from tainted food is as much a casualty as a man incapacitated by battle, then he will insist that the standards he sets up will be maintained. Waste must be prevented and salavage of food containers such as crates, boxes, textile bags, glass jugs and bottles should be impressed upon all mess personnel. Just criticism may be directed against the officers responsible for unnecessary waste. Waste may be prevented in its inception by timely preparation and planning; education of enlisted men not to take more than they can eat, inspection of the garbage cans to determine which foods are poorly prepared, disliked or are being too frequently served (even strawberry shortcake served daily can become monotonous), failure to follow the prescribed menu upon which the issue of food is based.

**Mess Problems in the Field: Selection of Camp Sites.** The tactical situation will control the location of the field mess. The first requisite in the selection of the site for the field kitchen is the use of natural cover to prevent observation of troop concentrations from the enemy. All possible precautions should be taken to prevent the exposure of cooking fires, lights, smoke and polished surfaces to enemy observation.

The next consideration is sanitation. Area commanders are responsible for the selection of camp sites and protecting the health of their command by promptly initiating and strictly enforcing adequate sanitary measures. Medical officers are responsible for making surveys of prospective camp sites and making recommendations as to their suitability. Adequate and suitable latrines should be constructed in appropriate places immediately upon going into bivouac. The mess officer should make it his business to see that the latrines are always located on the opposite side of the camp from the kitchen, and are so located that the drainage cannot pollute the water supply of the area. The mess area should be located at a minimum distance of 100 yards from the place where the refuse and garbage is burned or buried depending upon the equipment at hand. Upon the evacuation of a mess area, fires must be extinguished, latrines and kitchen pits filled and marked and the site left thoroughly policed. Troops should be informed where water for drinking, cooking, bathing and washing clothes may be obtained. If the water supply is a small stream, these places should be designated in the following sequence beginning upstream:

Zone I. Drinking and cooking
Zone II. Drinking for animals
Zone III. Bathing
Zone IV. Laundry
Zone V. Washing Vehicles.

The water supply should be clearly marked and guards posted to insure proper use of the water supply. Unless water is known to be pure, it should not be used. Troops should be accustomed in using water from Lister bags. It is estimated that one Lister bag should be provided for every 100 men.

Other considerations in preparing the mess area as part of the camp site are:

1. Accessibility to a supply of fuel.
2. Sandy loam or gravel soil, favorable to waste disposal.
3. Firm, grass covered turf.
4. Elevated, well drained site.
5. Sufficient space to avoid crowding and to permit proper spacing of the kitchen and latrines.
6. A good road net.

**Sanitation.** Kitchen wastes consist of food remnants accumulated before and after meals, as well as water in which kitchen utensils and mess gear have been washed. These wastes must be disposed of in order to prevent offensive odors and the attraction of flies and rodents to the mess era. The disposal of liquids is difficult as large quantities of water are used. For bivouacs of short duration, both liquid and solid wastes may be disposed of by burial either in deep pits or in trenches. One soakage pit with a baffle grease trap for each 200 men should be constructed. A second soakage pit should be installed if the camp is to last over 2 weeks. It is suggested that much of the wastes may be disposed of by sale or gift to farmers in the vicinity of the bivouac area. If none of the methods of disposal previously

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described exist, the garbage may be burned in an open incinerator. The incidence of food poisoning, diarrhea and dysentery in camps and on maneuvers indicates that training in mess sanitation has been neglected and that well established measures for control have not been rigidly enforced. It follows that lack of such control during training will result in a substandard combat value of the men. In order to prevent danger of infection, dishes and utensils must be treated by heat or chemicals. Immersion in water at a temperature of 160 degrees Fahrenheit for 1 minute will destroy pathogenic organisms. If the temperature is lower the immersion must be for a longer time, until at a temperature ranging from 140-145 degrees F. the dishes must remain in the water for 30 minutes. Dishes and utensils should always be air-dried. Mess kits should have waste food scraped off into suitable containers and then be washed in three cans of boiling water. The first of these three cans should contain hot soapy water and the second and third, clean hot water for scalding and rinsing. If clean dishes and utensils are immersed in concentrated calcium hypochlorite or chlorine solution and then rinsed in pure water an efficient disinfection is accomplished.

**Cooking in the Field.** The fundamentals of cooking are the same in the field as in garrison. The chief difference lies with the equipment used. Menus in the field are somewhat simpler than those used in garrison. The cooking in the field is centered around the field range. The gasoline field range, M1937, has been designed to perform a wide range of cooking operations using regular or treated gasoline as well as wood or coal as fuel. It is imperative that the cooks be trained in the operation of the range before going into the field. The field range is a removable, portable unit, capable of being expeditiously installed and operated on the ground, in an escort wagon, in a truck, in a trailer, on a railroad car, in a boat or in a building. It is possible to cook while the vehicle or boat is in motion. Food can be prepared either by roasting, boiling, baking, frying or broiling. Facilities are provided for heating water for beverages and for cleaning individual mess and cooking equipment. The construction of the range in small individual units makes it adaptable for use by large or small organizations, and its form is such that three units can be installed in the rear end of a 1½ ton Army truck.

Since the gasoline field range can be used on a moving vehicle, troops on the march should receive the full advantage of hot food when a halt is made for meals. The food selected for cooking en route should be of the type which will require a minimum of attention on the trip and will not suffer from being kept hot several hours. Since coffee becomes bitter and disagreeable if made any considerable time before serving, it is best to wait until the halt before brewing it.

**Mess Problems in Combat.** In combat the distribution of food to units will be based on the daily strength reports sent from companies to regiments, to divisions, and on to Army Headquarters.

From base depots, supplies are sent forward in bulk to a railroad or some other distributing point. From here they are delivered to proper division quartermaster officers who break them down, first into regimental lots, and then into lots for each messing unit. Usually supplies will reach a messing organization about 24 hours before they are to be used, and until that time the company messmen do not know what supplies they will receive. When supplies arrive, the mess sergeant will examine them and prepare a suitable menu.

## PURIFICATION OF WATER

Sterilization of water is the job of the engineer combat units and only after they have disinfected water or brought up water from approved sources should it be placed in the watersterilizing bags (Lister bags) which are issued to the organization. It is wise to train the kitchen personnel in the technique of water sterilization and purification. Underchlorination or overchlorination renders water nonpotable. Emergency measures must be resorted to by company mess personnel for water purification.

## RATIONS

A ration is the allowance of food for the subsistence of one man for one day. Three kinds of rations are currently authorized: the garrison ration, the Filipino ration and the field ration. Both the garrison and the Filipino rations are issued as money credits; the field ration is issued in kind. The greater part of the Army

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is at present rationed on some type of field ration although the garrison ration is authorized at certain installations. Unless specifically excepted by the War Department, field ration A and/or B will be issued to all troops stationed within the continental limits of the United States (excluding Alaska) and to all troops stationed in the Hawaiian Department, the Panama Canal and the Antilles Department except as listed below. In the following excepted cases, the use of the garrison ration is authorized.

a. Messes, general and station hospitals.
b. Cadet messes, United States Military Academy.
c. Survey parties in the field.
d. Isolated small detachments of 50 persons or less (when authorized by the commanding general of the air force, service command or department concerned).
e. United States Army Transports.
f. United States Army mine planters.
g. Army Air Forces rescue boat crews.

The garrison ration, in peacetime, is used universally in the Army. In effect, it is a credit, established for each unit at the sales commissary, against which the unit charges the cost of subsistence supplies.

Field rations—The field ration is authorized for use only in time of war or national emergency when the garrison ration is not used. It is issued in kind, and no ration savings are permitted. Its components and substitutes are prescribed by the War Department or the commander of the field forces.

Field Ration A—This ration corresponds as nearly as practicable to the components of the garrison ration. This type of ration is used currently in the continental United States and is issued overseas as often as circumstances will permit.

Field Ration B—This ration corresponds as nearly as practicable to the components of field ration A with the exception that nonperishable processed or canned products replace items of a perishable nature.

The field ration is based on a monthly menu prescribed for all stations operating on the field ration system within a service command. The menu indicates the components for each of the three daily meals and contains a recapitulation of the total quantity of issue of each item required to feed the menu to 100 persons. This menu is nutritionally balanced, and great care is taken to insure ample variety.

When it is considered essential in the performance of official duties, station or organization commanders may authorize officers, warrant officers, enlisted persons who have been authorized to mess separately, accredited news representatives, civilian fire fighters and civilians on duty with tactical forces to be subsisted at unit or consolidated messes.

A standard price of 25 cents is established for each meal furnished to individuals not authorized to be subsisted at government expense. The method of payment for such meals may be by cash or by meal coupons. During maneuvers or extended field exercises, officers and warrant officers regularly assigned to organizations are authorized, upon approval of commanding officer of the organization to which they are assigned, to reimburse the Government for subsistence furnished them at Government expense by having the amount due the Government for the meals furnished during each month noted on their pay vouchers.

All enlisted persons whose units are subsisted on a field or garrison ration basis who are authorized by competent authority to mess separately, and enlisted persons while on furlough will be paid the commutation value of the ration for each day in which they are in such status. The commutation value of the ration is announced from time to time in appropriate War Department publications.

## EMERGENCY RATIONS

Special types of field rations have been designed primarily for use in an active theater of operations and then only when it is impracticable to supply or use either the type A or B field ration. In order to conserve the supply on hand the emergency rations are issued only upon orders of the commander of the field forces.

When special type rations are issued for consumption, there will be corresponding decrease in the number of garrison or other type of field rations issued.

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### "C" Ration

This ration, which may be eaten either hot or cold, consists of previously cooked or prepared food, packed in hermetically sealed cans. It consists of six cans per ration as follows: 3 cans of meat components (meat and beans, meat and vegetable stew and meat and vegetable hash) and three cans of "B" unit (biscuits, confection sugar, beverage and a pack of 4 cigarettes). The meat components are more acceptable when heated, but they may be consumed cold if the situation so warrants. Beverages may be prepared without difficulty in either hot or cold water. A new type of fuel tablet, made of a synthetic compound known as trioxane, has been developed for heating C and K rations. It weighs a little more than an ounce and will heat a meal in six or seven minutes.

### "D" Ration

While the excellent new "type C" rations fill an important need, at 4 lbs., 1½ ounces even these are too heavy and bulky for most mobile combat units. The "D" ration consisting of three 4-ounce concentrated chocolate bars wrapped in cellophane and overwrapped in a wax dipped carton is intended to allay the worst hunger of a single missed meal. These bars are made of chocolate, sugar, oat flour, cocoa fat, skim milk powder, artificial flavoring and are fortified with thiamin hydrochloride (Vitamin B-1). They have a high melting point, approximately 120 degrees F., and are desirable as an extreme emergency ration.

### "K" Ration

It consists of three wax-dipped cartons labelled "Breakfast Unit, Dinner Unit and Supper Unit" and is issued to the individual soldier for consumption either hot or cold. This ration is compact and light. The components will withstand long periods of storage without appreciable change in flavor, texture or consistency.

### "J" Ration

The "J" ration consists of canned, evaporated and dehydrated foods to supply one soldier for 4 days. The individual components are removed from the container and placed in waterproof bags that have been issued to the men. This ration is being replaced by improved rations such as the 5-in-1 ration and the still newer 10 in 1 ration.

### "5-in-1 Ration" or "V" Ration

The "5-in-1 ration" consists of canned, dehydrated and evaporated foods in quantities sufficient to supply five men for 1 day. For limited periods of time seven men can mess from one ration. Three different combinations of food components are cased to eliminate the monotony in the diet. The combinations are designated as Menu 1, 2 and 3. The components are assembled in a case with the non-rigid containers of food distributed between two 5 quart black metal cans. This ration is for distribution to groups absent from their base camp but not in active combat.

### "10 in 1 Ration"

The most recent addition to the emergency rations is intended to replace the "5-in-1" ration and other less suitable rations. The food is packaged in 4 containers so that it can be issued in units of 5 or 10 rations. Two of the packages are dipped in wax to make them waterproof. The outer package is bound with steel straps. This type of package will speed up ration break down a great deal and is provided in 5 different menus to give variety to the troops. The proper menu is inserted in each ration as a guide to the preparation and use, and the menu number is marked on the outside of each complete ration. Although the 5 different menus will not be given here, the variety of foods is indicated as follows: Beside "K" ration breakfast, dinner, and supper units, "D" rations and "C" biscuits, there are added items such as army spread, canned; coffee, soluble; jaa; evaporated milk; pineapple rice pudding; pork sausage; baked beans; pre-mixed cereal; hard candy; smoked bacon; etc. The daily supply contains: salt, sugar, cigarettes, halazone tablets, matches, toilet paper, white floating soap, paper towels, individual can openers and so forth.

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### Army Mountain Ration

The Mountain Ration consists of food to supply four men for 1 day. Three different combinations of components are packaged and designated as Menu 1, 2 and 3. Variety of components have been sacrificed to make a compact, lightweight ration.

## DEHYDRATED FOODS

Dehydration is a process of drying by extracting the water through a scientifically controlled heat process designed to retain much of the original food value, vitamin content, flavor and natural texture.

Dehydrated foods are used as component parts of various emergency rations such as the 10-in-1 ration. They are merely fresh foods from which water and inedible portions such as peels, cores, seeds, stems and bones have been removed. Fresh foods when dehydrated are greatly reduced in weight and bulk so that it is readily seen that space and shipping can be conserved. The bulk is reduced by one-half to three-quarters, and if compressed after drying, the processed food may have only 5 to 10% of the bulk of the original fresh product. These facts and figures indicate the tremendous savings in storage and shipping space by the use of dehydrated foods:

| *Original Weight* | *Weight after dehydration* |
|---|---|
| 100 lbs of fresh cabbage | 6 lbs |
| 99 lbs of raw onions | 7 lbs |
| 100 lbs of fresh carrots | 8 lbs |

Other items vary from 1/4 to 1/20 of the original weight.

Foods which have been subject to dehydration are in a state of preservation primarily because of their lower moisture content. The micro-organisms commonly present in foods, responsible for spoilage, are unable to carry on their usual activities when the water content is sufficiently low. However, since all these organisms are not killed by drying they remain dormant in dehydrated foods only to begin their activities when water is restored at a later date.

### Reconstitution of Dehydrated Foods

The method of reconstitution is perhaps one of the most important factors to be considered when using dehydrated foods. Attempts to force reconstitution through the use of boiling water generally results in an inferior finished-product. All methods should be designed for the purpose of securing maximum soakage of moisture within a necessarily limited length of time. A short preliminary soaking in either cool or lukewarm water is preferred whenever possible. After a ten to thirty minute soaking period, the products should then be brought to a slow boil. If the time factor is controlled so that 30 to 45 minutes will elapse before the boiling point is reached, maximum water absorption will be obtained. Vigorous boiling is not recommended at any time, although it will not prove harmful provided a preliminary soaking period has been permitted. The amount of water to be used in the reconstitution of dry foods is given in the menu which pertains to the preparation of that particular dish. Large quantities of water should not be used when reconstituting dried foods. Valuable nutrients, such as water-soluble mineral salts, vitamins and the like may be lost if surplus water is used and then discarded. It is impossible to use the exact quantity of water because a slight surplus is necessary to eliminate danger of scorching during the reconstitution process. This small surplus should be served as a natural juice, which would accompany fresh vegetables under normal circumstances. Should too much water be used during the cooking procedure, the surplus should be drained off and used for soup stock or as the water ingredient for other cooked foods. The retention of these juices overnight may result in souring so they should be used at once. Remember that the reconstitution process is necessary in all dehydrated foods prior to baking, frying, or pickling, and that dehydrated foods are unseasoned.

All dehydrated foods are packed for the Army in air-tight and insect proof containers. When dehydrated foods are once opened, and the entire product not used, it is of the utmost importance that the container be immediately resealed in order that the remaining contents be fully protected from air or moisture contamination, or that they be transferred to another receptacle affording such a measure of protection.

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## RATION ACCOUNTING

Probably one of the most important phases of mess management is the method of ration accounting. One of the most concise statements indicating the need for proper ration accounting was printed in a recent Quartermaster Training Journal. It states: "When your wife invites five of her friends over to the house for a little gab-fest, and she figures she'll let 'em put on the feed bag for a while, she doesn't go out to the market and buy enough food for ten people, does she? She doesn't unless filling garbage cans happens to be her hobby. OK, so it's good sense to know just how many mouths you're gonna feed and to order the right amount of food to fit that number of mouths. That makes just as much sense in the Army. Of course, here it's a little more complicated. Your wife knows the exact number of guests she's going to have. A mess officer can't shave it so close because a lotta guys have engagements, or maybe even a few "ringers" show up. That's why there's work attached to finding out the right number for a mess hall. But the effort is plenty worthwhile when you start thinking about the piles of food that can be saved if rations throughout the Army are issued only for the actual number of men who are gonna eat 'em. Take an item like oranges—if rations are drawn on a basis of morning reports and 20 men out of a company don't show up in the mess hall that day, that's 20 oranges present but not accounted for. If this happens in a lotta mess halls, pretty soon you got enough oranges to go into competition with California (insert here Texas for the Texans). The present system of drawing rations cuts the chance of this happening. The only thing is, you gotta help the system along by being accurate. Now you're ordering rations on the basis of estimates of how many men are gonna eat in your mess that day. You take a head count of the men who eat each meal, and by saving these records, you have a solid basis for an accurate estimate of the number of men who will eat on a given day. You just check through your records for a day that's like this one, see how many ate then, add or subtract for any special features that have come up (like Lana Turner appearing in person in town that night) and you get it. Make your count accurate now and your estimates will be accurate in the future."

Mess management has put the supply of food to the fighting man out of the hit or miss stage of planning and into the realm of an exact science. Sure, it is constantly changing but we would be going backward if we were not always adding something to our store of knowledge and experience.

It all sums up to one inescapable fact. Mess management is just plain ordinary common sense added to facts and figures and your result is proper mess planning.

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## POSTAL CENSORSHIP

**Definition.** Censorship is the examination of communications in order to modify or control the disposition of information contained therein which might afford aid and comfort to the enemy, or affect the war effort or public security.

Much has been written in an attempt to put into effective practice the basic principles of censorship. This information is so widely scattered throughout the many publications of higher headquarters that it has become very discouraging for the unit censor to find positive and concrete information concerning his very important job of censoring the mail.

Throughout this discussion of censorship keep in mind the responsibility of commanding officers for censorship is a command function.

The chain of military censorship may be effectively broken down into the fo lowing three phases: (1) Education and Indoctrination, (2) Unit Censorship, and (3) Base Censorship.

**Education and Indoctrination.** Education of the personnel must be complete on several points. First, and most important, the personnel must be taught what they can and cannot write or talk about, and why. Those things which cannot be written about are quite specific and will be listed in detail later in the section. After seeing this list, the soldiers' natural question is, "Then what can we write about?" The answer to this question is going to require much initiative and ingenuity on the part of the unit censor for he must have an answer to it. A few suggested topics which may be written about will be included later as a guide for unit censors. These few topics are not intended to exclude many other topics which the unit censor may approve.

The educational program must get started as early as practicable, preferably at replacement training centers, officer candidate schools, and unit training centers. The system must continue through the staging area and while aboard ship, developing into a series of 'maintenance' lectures after arrival at the theater of operations, in order to keep the personnel informed of recent and current changes in regulations affecting censorship.

Active unit censorship goes into effect when an organization leaves its home station to report to the staging area. Each man must be well aware that the only postal system he may use from then on is the one set up and operated by his unit censor. He must know how to head his letters and how to show his return address using his APO number. A sample heading and return address follows:

| | |
|---|---|
| Heading: | Co. C, 299th Inf., APO 1005,<br>c/o The Postmaster,<br>New York City, N. Y. |
| Return: | Sgt. John S. Smith, 6747318,<br>Co. C, 299th Inf., APO 1005,<br>c/o The Postmaster,<br>New York City, N. Y. |

Easily one half of the unit censor's job is the education and indoctrination of the personnel within his unit, and the manner in which the men accept active unit censorship is an indication of how well the unit censor has accomplished his program of education.

**Unit Censor.** The unit censor, usually a junior officer, must be appointed within each company or detachment not later than the day of receipt of the warning order for overseas movement. A much earlier date is preferable in order to continue the training each man has received during his training center days.

The job of the unit censor will be easy or hard from this point on depending upon how well he has conducted his program of education, for he has a definite

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and positive job to perform. He must establish a mail box within his unit area and insist that *all* outgoing mail be deposited therein. No other postal channel may be used by anyone, including officers. He removes the outgoing mail from this box as often as time will permit.

What will he censor? All enlisted men's mail except insured, registered, and blue envelope mail. These exceptions are forwarded to the base censor who will examine them. Blue envelope mail will be discussed later. Those types which he will censor include regular mail, V-mail, air mail, post cards, photographs and parcels. He requires that these types of mail be posted unsealed. He removes one letter at a time from the envelope and reads it with a view toward catching any breaches of security regulations. His most common "catch", unless his unit is exceptionally well trained in security regulations, will be open code, commonly called family code. Frequently men try to let their families know where they are by crude, self-devised codes. The censor must warn his unit against the use of such code for two important reasons; first, they are very easy to spot by an experienced censor, and secondly, such a breach of regulations will result in disciplinary action. He must keep in mind the confidential nature of his duties and must not discuss the contents of any letter with anyone except the man who wrote the letter. After examining each piece of mail he will take one of the following actions. If the letter or parcel does not contain any violations of the censorship regulations, it will be passed. He will replace the contents in the cover and seal it. After sealing he will place his name and grade in the lower left hand corner of the envelope. He will then apply the unit censor's stamp to the front left hand side of the envelope. Unit censor's stamps will be secured from the commanding officer of the staging area through which the unit passed. The stamps must be receipted and are classified as confidential. In the case of parcels, he will also attach a list of the contents on the outside of the parcel. If the letter contains a violation of censorship regulations, it will be returned to the sender or condemned by the unit censor without notice to the sender, depending upon the nature of the violation. Normally, a letter will be condemned only when it is believed that the original will be needed as evidence for disciplinary action. When a unit censor believes that a letter should be condemned, he will prepare an informal recommendation indicating such action and the reason therefor. The recommendation, together with the letter concerned, will be forwarded directly to the chief base censor.

Letters containing minor infractions will be returned to the sender with a notation on an inclosed Military Censorship Form 4 indicating the nature of the violation. The unit censor, if practicable, will discuss personally with the offender the nature of the violation instead of using the censorship form.

Excessive mutilation of mail by excision is never warranted. If a letter contains a word or short phrase here and there violating censorship regulations but is not otherwise objectionable, the unit censor will excise the objectionable word or phrase by using a sharp knife. When necessary excisions are so extensive as to destroy the sense of the message, the letter will be returned to the sender for revision. Excisions will be sufficiently complete to prevent restoration of the original meaning of the excised portions by the addressee. Information will not be deleted by lining out with a pencil, ink, paint or other such material.

If it appears desirable that a letter go forward but a record is needed for evidence or future reference, the letter should be forwarded to the chief base censor with an informal recommendation that it be photographed or photostated before being passed.

When reference is made in a letter to an inclosure which cannot be found, the omission will be called to the attention of the sender in person if feasible. If the sender cannot readily be reached, the censor will prepare duplicate copies of Military Censorship Form 2. The original will be placed in the letter and the communication returned to the sender. If local conditions render such action impracticable, the letter will be passed, still containing the Form 2. The duplicate of the Form 2 will be retained by the censor for his protection.

The unit censor will not censor officers' and warrant officers' mail or official mail. Official mail falls into four general classes: (1) mail addressed from one headquarters to another headquarters; (2) mail addressed from a headquarters to

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the head of a governmental agency; (3) mail addressed from one general officer to another general officer; and (4) mail addressed from a headquarters to an individual. The latter class may be censored if circumstances warrant.

**Blue envelope mail.** When an enlisted man finds it necessary or desirable to write a letter containing personal information which he would rather the unit censor did not see, he is authorized by the commanding officer to inclose such letter in an issue blue envelope, WD AGO Form 911. This mail will be sealed by the sender and deposited in the regular mail box used by the rest of the organization. Such letters will not be censored by the unit censor but will be forwarded through Army Postal Service channels to the base censor.

It might be well to inject here the do's and don'ts for all private and personal correspondence. The unit censor must impress upon the minds of all concerned that there are very definite subjects which they are **not** to write or talk about. These subjects include:

(1) The exact geographical location of any unit. At the discretion of the theater or base commander, general locations such as Somewhere in England, Somewhere in Africa and the like may be disclosed in letters to the United States, to an address in the country of origin, or to other personnel under United States jurisdiction. Letters addressed to persons not in the United States military service in locations outside the continental limits of the United States will disclose no location whatsoever.

(2) The location, identity, or movement of any allied ship or aircraft.

(3) Any information concerning allied military or naval forces.

(4) Military, naval, or aircraft armament or equipment of any kind.

(5) Distinguishing signs used for identity of organizations.

(6) Plans and forecasts or orders for future operations whether known or merely surmised.

(7) The use, condition, or probable extension of roads, air routes, railroads, bridges, utilities, or other transportation facilities.

(8) Position or description of billets, bivouacs, camps, or probable locations of groups of soldiers, or troop or supply movements.

(9) The effect of enemy operations or casualties to personnel or materiel suffered by the allies previous to the official publication of such information.

(10) Criticisms or statements, the dissemination of which might interfere with the war program or tend to disparage our forces or the foreign relations of the United States or any ally.

(11) Reports of atrocities unless released by appropriate authority.

(12) The military status of any person in transit or the fact of his movement.

(13) Postal confirmations of cable and radio messages.

It seems to the average soldier, after listening to the above 'don'ts,' that there is little if anything left about which he may talk. Here are a few permitted topics, however, which will make the job of censoring the mail for the unit censor much easier, if he can keep the troops well supplied with them: health, incidents of bravery concerning either the writer or his buddies, and all types of recreation such as movies, swimming, base ball, etc. Also permitted are questions about the writer's family and friends, and news of home-town happenings, and stories about the soldier's army friends, his mess, his officers, what he does with his spare time, the fact that he appreciates letters from home and what he would like his folks to send him.

The unit censor must indoctrinate his unit with this very important fact: He will read all letters leaving the organization from a censor's viewpoint only, that is to say, if a letter does not affect the war effort, then it is of no concern to the censor.

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## APPOINTMENT AND REDUCTION OF NONCOMMISSIONED OFFICERS

The qualities looked for in the men of an organization when noncommissioned officers are wanted will necessarily vary, depending on the positions in the table of organization to be filled. Such qualities as leadership, intelligence, academic acuteness, physical attributes and the possession of a technical specialty will determine which man will be selected.

### APPOINTMENT

**Appointment.** The date an appointment becomes effective is the date of the instrument of appointment, unless such instrument is merely confirming oral orders previously issued. Where an appointment is made by the oral order of an officer having the authority to appoint, the oral order will have all the power of a written order, provided it is later confirmed in writing. If a man is reduced without prejudice and appointed to a lower noncommissioned grade on the same date, his date of rank may then revert to his original date of rank in that grade or any higher grade, and the order must state the date of rank in such a situation.

**Temporary appointments.** All appointments during the emergency are temporary; there are no warrants issued. A copy of the order is given in lieu thereof. If a unit commander desires to try out a man with the intent of later promoting him if he is satisfactory, he is authorized to exceed the authorized allotments by the number of vacancies that exist in a higher grade.

No personnel physically disqualified for duty with the field forces are to be promoted prior to transfer to an overhead unit. Further, no man will be promoted after the date of request for transfer to another unit until approval is given by the commanding officer of the unit to which the man is being transferred.

**Who may appoint.** Noncommissioned officers in a regiment may be appointed by the regimental commander, in a detached or separate battalion by the battalion commander, and in a detached or separate company by the company commander. Privates first class, may be appointed by the company commander. In units such as service command headquarters, ROTC, or ASTP, the commanding general of the service command concerned has the authority to appoint and reduce noncommissioned officers. Chiefs of the services and commanders of units higher than regiments may appoint noncommissioned officers and privates first class, within their own headquarters.

**Acting Noncommissioned Officers.** Acting noncommissioned officers (jawbone) may be appointed for one of several reasons. The company commander may appoint a man in an acting capacity with a view to later appointing him as a noncommissioned officer. Acting noncommissioned officers are appointed for the purpose of controlling inductees who are traveling on enlisted reserve corps furlough. Too, acting noncommissioned officers are appointed for control of casual groups en route to and from overseas theaters. In the later case, the appointment may be made by commanders of personnel replacement depots, camps, stations, and ports of embarkation; however, the appointment should in no way effect the seniority of regularly appointed noncommissioned officers assigned to the unit, nor should the number appointed exceed the following ratio:

One Cpl to each twelve casuals
One Sgt to each thirty-five casuals
One 1st Sgt to each company or detachment.

These 'jawbone noncoms' are entitled to wear the insignia of grade, and are to be shown the respect and obedience of the rank they hold. They are not entitled to the pay and allowances of the active grade.

The appointment of acting noncommissioned officers is terminated by (1) the appointing authority prior to the enlisted man's departure from the post commanded by the appointing authority, (2) commanding officers of ports when it is the best interests of the service; and (3) upon the enlisted man's arrival at the final destination.

**Cadre personnel.** Should cadre personnel arrive at the post prior to the activation of their organization, they may be appointed or reduced by the post commander upon the recommendation of the prospective unit commander.

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**Hospitalization.** What effect does the fact that a man is in the hospital have on his possible promotion? He may be promoted while in the hospital provided he would have been promoted had he been on a duty status. The hospital authorities should inform the organizational commander if the man is to be hospitalized over sixty days, in which case the vacancy may be filled. The hospitalized soldier is carried as excess in grade. Upon his return to the organization any resulting excess in grade will be absorbed by normal attrition.

**Posthumous appointment.** If a man has been recommended for promotion at the time of his death, the Secretary of War may make the appointment. Records will then show service from the date of recommendation to the date of death in that grade, but will have no effect whatever on any bonus or death gratuity which may be due.

## REDUCTION

**How effected.** There are four principle means of reducing noncommissioned officers and privates first class. The first is by action of a court-martial. A sentence in the case of a noncommissioned officer or private first class, which includes either a dishonorable discharge (whether suspended or not) or hard labor (either with or without confinement), automatically reduces the individual to the grade of private effective upon the date of the court-martial order which approves the sentence. If the man is to be reduced and the sentence does not include one of the aforementioned punishments, it must definitely state that the soldier is to be reduced to the grade of private. However, the court is limited to this extent, the sentence must be for an offense which is punishable by confinement at hard labor for a period in excess of five days.

The second method of reduction is by direction of the Secretary of War, who may terminate any appointment at will.

Third an appointment may be terminated by the authority competent to make the appointment. A private first class may be reduced at any time when it is to the best interest of the service. For noncommissioned officers it is necessary to show misconduct or inefficiency, which may be determined by a board if the appointing authority so desires. In addition to this, a first sergeant may be reduced simply upon the recommendation of the company commander for any reason he deems sufficient.

Finally, any noncommissioned officer may be reduced at his request.

No man may be reduced because of sickness in line of duty. For sickness not in line of duty he may be reduced by the appropriate administrative action.

**Termination of appointment.** The termination of a soldier's appointment is effective on the date of publication of the court-martial order approving the reduction. In all other cases, reduction is effective on the date upon which notice of reduction is received by the soldier concerned; or if he is absent for his own convenience, then the effective date is the date the reduction notice is received at the soldier's proper station.

AR 615-5 (Enlisted Men: Appointment and Reduction of Noncommissioned Officers and Privates First Class).

WD Cir. 253/44 (Enlisted Men—Reduction of Technicians).
FM 21-5 (Military Training).

## AUTHORIZED ABSENCE

**General.** It is the duty of commanding officers having authority to grant furloughs to encourage enlisted men to take advantage of short furloughs, when it can be done without manifest injury to the best interests of the individual or the service. Furloughs will be granted unless urgent military necessity prevents to the following personnel prior to departure for a port of embarkation or a replacement depot subject to overseas shipment: enlisted men, regardless of length of service, who have had no furlough since ordered to active duty; and enlisted men who have had no furlough in the past six months. Enlisted men granted furloughs under these conditions will be required to return to their home station upon expiration of the furlough.

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**By whom granted.** Within the continental United States, the commander or chief of any force, service command, or installation, the commanders of posts, camps, and stations, and the commanders of regiments and separate battalions, may grant furloughs to enlisted men under their control on the basis of 30 days per year, and for such brief additional periods as may be necessary in emergencies. They may delegate this authority to grant furloughs to such of their subordinate commanders as they may designate. Furloughs, except in three instances, will be confined to periods not in excess of 15 days at any one time. Furloughs for a longer period of time may be granted in cases of extreme emergency or when individuals are returning from service outside the continental United States. Furloughs for longer periods of time may also be issued for purposes of convalescence while a patient is in a station or general hospital. Convalescent furloughs will not be included in computing the amount of furlough which men may be granted under the above provisions.

Outside the continental limits of the United States, the commanders of base commands, defense commands, service commands, departments, theaters of operations, and of independent installations, may prescribe the system of furloughs to be observed in their respective commands. If they so desire, they may delegate the authority to grant furloughs to such of their subordinate commanders as they may wish to designate.

**Computing Dates and Time.** The date which appears on a furlough as being the effective date of the furlough represents the day on which the soldier is authorized to leave his place of duty and is counted as the first day of furlough. The day a soldier returns to his place of duty (regardless of the hour) is considered as a day of duty and the first preceding day is considered his last day of furlough. For example, a soldier is granted a 10-day furlough from 1 Jan 44 to 10 Jan 44. This represents 10 actual days of furlough. The soldier may leave his place of duty at any time on 1 Jan and must return sometime during 11 Jan. If the soldier returns on or prior to 10 Jan, the day of return is to be considered as a full day of duty, and the preceding day is the last day of furlough. Naturally, upon return, the soldier is to be charged with only the actual number of days spent on furlough.

**Overstaying furlough.** When a soldier has overstayed his furlough time and the excuse given is not acceptable by his commanding officer, he automatically forfeits his furlough ration money for his entire furlough, and is also placed on a non-pay status for the number of days absent without leave, if it amounts to more than 24 hours.

**Furlough Certificate.** W.D., A.G.O. Form No. 31 (Furlough) is prescribed as the only printed form upon which absence of more than 3 days may be authorized. However, delay en route in connection with official travel may be authorized in official travel orders, and furloughs granted to large groups such as from Army Specialized Training units and replacement training centers may be authorized by special orders. The furlough certificate is to be signed by both the soldier and the granting authority on the original copy only. The original is given to the soldier and the duplicate remains in the orderly room.

**Extensions.** Furloughs may be extended by the written or telegraphic authority of the officer issuing the original furlough when, for emergency reasons, it may become necessary. Verbal extensions are never authorized.

**Furloughs not to be combined with passes.** Furloughs will not be granted in conjunction with passes. Enlisted men going on furlough will not have in their possession either a temporary or permanent pass, nor may men going on pass have in their possession a furlough. The above statement is not intended to preclude the issuance of either a pass or furlough to any enlisted man immediately following his return from furlough or pass if circumstances warrant.

**Delay en route.** When travel orders are issued respective to an enlisted man, it may be advisable to give him a few days "extra" time over and above his actual travel time in which to reach his destination. This extra time is known as delay en route. It is in effect nothing more than furlough, and as such is always charged against the soldier's furlough time.

**Passes.** W.D., A.G.O. Form No. 7 is prescribed as a temporary pass for issue

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within the United States. It is to be used to authorize absence of enlisted men from their place of duty for three days or less.

AR 35-1400 (Pay and Allowances During Authorized Absences)
AR 35-4520 (Monetary Allowances in Lieu of Rations and Quarters for Enlisted men)
AR 615-275 (Enlisted men, authorized absence)

## TRANSFER OF ENLISTED MEN

Enlisted men, at the present time, may be transferred from one organization to another organization only when such action will result in a substantial benefit to the military service.

Transfer of enlisted men may be directed by the lowest administrative commander who commands both units. This authority may be delegated by such commander to any subordinate commander consistent with the situation at hand.

The above facts are not in any way intended to exclude the possibility of a man applying for his own transfer. The enlisted man must keep in mind however that in his application he must show conclusive evidence that his transfer will result in a substantial benefit to the Government. In the event of disapproval by any administrative headquarters, such disapproval will be final, and the application returned directly to the originating headquarters.

Except in unusual circumstances transfers will be in grade. When a request for transfer is initiated by an enlisted man or by any officer under whose command he is serving, the fact of promotion of the enlisted man to a higher grade between the date of initiation of the request and the date of issuance of orders will be reported to the officer to whose command he is to be transferred prior to issuance of transfer orders in order that the latter may confirm or withdraw his approval of the transfer in the higher grade.

### Bibliography

AR 615-200, 15 March 43—Enlisted Men, Transfers
C1, AR 615-200, 24 June 43—Enlisted Men, Transfers
C2, AR 615-200, 25 September 43—Enlisted Men, Transfers
C3, AR 615-200, 25 March 44—Enlisted Men, Transfers

## DISCHARGE OF ENLISTED MEN

### GENERAL

A great number of men have been discharged from the Army during the past few years for various and sundry reasons. The intent here is to discuss discharges in general and then to cover the several ways in which soldiers may be released by the Army.

### PERIOD OF SERVICE

The normal period of service for all members of the Army of the United States at the present time is the duration of the existing emergency plus the six months immediately following.

### TYPES OF DISCHARGE CERTIFICATES

The three types of discharge certificates, one of which must be given to every enlisted man upon release from the military service, are as follows:

W. D., A. G. O. Form 55—Honorable Discharge (White)
W. D., A. G. O. Form 56—Discharge without Honor (Blue)
W. D., A. G. O. Form 57—Dishonorable Discharge (Yellow)

### CHARACTER

Except in cases in which discharge is specifically required to be given on Form 56 or 57, the company commander, when of the opinion that an enlisted man's service has not been honest and faithful and that he is not entitled to a character rating of at least 'Good', will so notify the enlisted man, if practical, 30 days prior to discharge and will at the same time notify the commanding officer of the next higher unit. Such higher commanding officer will in every case convene

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a board of officers, three if practical, to determine the character rating and the form of discharge certificate to be given the enlisted man. The company commander is not eligible for detail on this board.

## OVERSEA DISCHARGE

Enlisted men serving in oversea commands, who were enlisted or inducted in the United States and who are authorized to be discharged and do not intend to reenlist, will ordinarily be returned to the United States where the discharge will be accomplished. Commanders are to encourage men who are about to be discharged from the service to accept employment during the period of national emergency in essential war industry.

## PROVISIONS FOR DISCHARGE

### End of Term of Service

When a soldier has completed his normal term of service, be it duration plus 6 months or, in time of peace, his normal three year enlistment, he may be discharged from the military service and issued the appropriate discharge certificate.

### Disability

When an enlisted man with less than 20 years' service becomes physically unfit for military service, he will be hospitalized in a military hospital in the United States until his physical condition has reached a point where he can be returned to duty, or until it can be determined that the disability is such that physical rehabilitation for military service is not feasible. In the latter case the man may be discharged from the military service. When an enlisted man has 20 or more years of service, AR 615-395 prescribes the exact method of procedure. The discharge of an enlisted man for physical reasons because he is incapable of serving in a physically exacting position when he may render adequate service in a less exacting assignment is a waste of manpower and is prohibited. Such men will be retained in the service and given an appropriate assignment. Failure to fulfill the minimum physical standards for induction under MR 1-9 will not alone be cause for discharge if the enlisted man can be reassigned and utilized.

### Purchase

Suspended for the duration of the war plus 6 months.

### Minority

The proper authority shall discharge from the military service all enlisted men under the age of eighteen on the application of either of their parents or of a legal guardian. Men discharged for this reason shall receive all pay due and the form of discharge certificate to which the service of each, after enlistment, shall entitle him.

A minor will not be discharged on his own application, but whenever a minor, whose parents or guardian have not applied for his discharge, is discovered to be under the age of sixteen, the proper authority will, after a review of the case, direct the retention of the enlisted man in the service or his discharge.

The discharge of any enlisted woman in the WAC who is found to be under the age of 20 is mandatory. The application of parent or legal guardian is not required.

### Dependency

When by reason of death or disability of a member of the family of an enlisted man occuring after his enlistment or induction members of his family become dependent upon him for care or support, he may be discharged from the service of the United States.

Discharges on account of dependency will be granted only when the necessity therefore is extreme.

The evidence required for discharge is affidavits showing that:

(a) Enlisted man's presence at home is necessary for support or care of members of his family.

(b) This condition has arisen due to death or disability occurring in enlisted man's family since his enlistment or induction.

(c) Discharge of the enlisted man is necessary to prevent or relieve destitution and the necessity therefor is extreme.

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For the purpose of discharge the term "members of the family" includes only the following: wife, children, father, mother, brothers, sisters, and relatives who have stood in loco parentis to the soldier prior to his enlistment or induction.

The policy of the War Department in cases of persons subject to Selective Service is not to authorize discharge except when the State Director of Selective Service concerned recommends approval.

### Fraudulent Entry Into The Army

Discharge may be authorized where a soldier has concealed one or more of the following facts.

(a) Concealment of desertion from the armed forces of the United States or an unauthorized absence from the Army of the United States as contemplated in AR 615-300.

(b) Concealment of separation from the armed forces of the United States with a form of discharge other than honorable.

(c) Concealment of a criminal record.

An enlisted man who procures his entry into the Army through enlistment and who is to be discharged for the commission of a fraud will be given a discharge from the Army of the United States (blue). The reason for the discharge will be stated on the certificate.

### Absent Without Leave and Desertion

When an enlisted man whose trial is barred by Article of War 39 is returned to military control, he will be restored to duty by the officer exercising either special or general court-martial jurisdiction, provided he is physically and mentally fit for the performance of military duty. If physically or mentally unfit for service, the soldier will be discharged by reason of desertion and physical unfitness, trial barred by AW 39.

When an enlisted man whose trial is not barred by Article of War 39 is returned to military control, the officer exercising general court-martial jurisdiction may order the discharge without trial because of desertion and physical unfitness.

Discharge will not be ordered under this section if the physical disqualification is temporary and curable within a reasonable period of time, or if the enlisted man does not possess sufficient mentality to distinguish between right and wrong and is consequently incapable of forming the intent which is an essential element of the offense of desertion.

The discharge certificate to be given in the case of absent without leave and desertion will be a discharge from the Army of the United States (blue).

### Inaptness or Undesirable Habits or Traits of Character

When an enlisted man is inapt or does not possess the required degree of adaptability for the military service after reasonable attempts have been made to reclassify and reassign him in keeping with his abilities and qualifications, or if a man is disqualified for service because of enuresis or gives evidence of habits or traits of character (except those which would qualify him for disability discharge) which serve to render his retention in the service undesirable and rehabilitation of such soldier is considered impossible after repeated attempts have failed, he may be discharged by appropriate action of the commanding officer with authority to grant discharges.

In cases of inaptness, lack of adaptability and enuresis, an honorable discharge from the Army of the United States (white) will be given unless, according to the approved findings of the board of officers, the conduct of the soldier during his current service has been such as would render his retention in the service undesirable regardless of his inaptness, lack of required adaptability for military service, or enuresis. In such cases the discharge certificate will show that reenlistment, induction, or reinduction is not warranted. In all other cases a discharge from the Army of the United States (blue) will be given.

### Conviction by Civil Court

The local commander having authority to discharge may, within his own discretion, discharge enlisted men who during their term of service have been finally convicted by a civil court of an offense, the nature of which clearly indicates that the individual is not a suitable person to associate with enlisted men, or who has

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been convicted of one of the heinous crimes of treason, murder, rape, kidnapping, arson, sodomy, or pandering, or of any crime of sex perversion, or for any illegal dealing in narcotics or other habit-forming drugs, or has been convicted of any offense and sentenced to confinement for a period in excess of one year in a prison or penitentiary.

If the soldier has been sentenced to imprisonment while absent in desertion or in an unauthorized absence and discharge is considered advisable, the discharging authority may effect the discharge.

An enlisted man discharged on account of conviction by a civil court will be given a discharge from the Army of the United States (blue).

### Convenience of the Government

As a general rule a discharge for the convenience of the government will be given only by authority of the Secretary of War. Such authority may be given either in each individual case or by an order applicable to all cases of a class specified on the order.

Those cases where blanket authority is granted to local commanders are as follows:

(a) To commanding officers of armed forces induction stations when it is evident that a registrant is improperly assigned and inducted, in which case he may be discharged for immediate enlistment in the Navy, Marine Corps, or Coast Guard.

(b) To local commanders to discharge soldiers to accept a commission in the armed forces.

(c) To local commanders when based upon the soldier's importance to National health, safety, or interest.

(d) To local commanders based upon a claim that the soldier was erroneously classified, should not have been inducted, and did not have the opportunity to present his case to the appeal board.

(e) To local commanders based upon an enlisted enemy alien's acceptance for military service. No discharge shall be granted except upon the soldier's written application, which must include statements that he was at the time of his acceptance for military service an alien of an enemy country or country allied with the enemy; (2) prior to induction he objected in writing to service in the Army; and (3) he is unwilling to serve in the Army in any capacity.

Unless otherwise directed by the approved proceedings of a board of officers, an honorable discharge from the Army of the United States will be given if discharged. All discharge certificates executed for the convenience of the government will, in addition to that phrase, contain a short statement indicating the specific cause for discharge.

### Writ of Habeas Corpus

The discharge of an enlisted man from the Army may be ordered by a United States court or any judge or justice thereof for any reason satisfactory to such court, judge, or justice. Upon receipt of such an order, the officer upon whom the order is served will report to The Adjutant General the action taken by the court and forward a copy of the opinion of the court. Upon notification that the War Department has determined not to appeal the case, the soldier will be discharged.

### Dishonorable Discharge

An enlisted man will be dishonorably discharged from the Army of the United States pursuant to the sentence of a general court-martial or a military commission, and for no other reason. Such person will be given a dishonorable discharge certificate (yellow).

### Release of Enlisted Men to Reserve Components

When it is desirable to return a soldier to civil life without relinquishing control over such soldier, either for an indefinite period of time or for a limited period of time, such soldier will be released from active service and transferred to a reserve component.

National Guard enlisted men and enlisted members of the Army of the United States who were originally inducted with National Guard units will revert to National Guard status under state control.

Enlisted men of all other components will be transferred to the Enlisted Reserve

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Corps, except members of the Regular Army Reserve who will revert to inactive status of the Regular Army Reserve.

W.D., A.G.O. Form 280 (Certificate of Service) will be issued to each enlisted man who is honorably released from active military service in the Army of the United States in accordance with the provisions of this section.

### Retained For Medical Care or Hospitalization

Any soldier in the active service, whose term of service will expire while he is suffering from a disease or injury incident to service and not due to misconduct, and who is in need of medical care or hospitalization may, with his consent, be retained in the service beyond the expiration of his term of service and receive at government expense medical care and his pay and allowances (including expense money authorized by law and credit for longevity), until he shall have recovered to such extent as would enable him to meet the physical requirements for reenlistment, or until it will have been ascertained by a board of officers that the disease or injury is of a character that recovery to such an extent would be impossible, whichever is earlier.

Retention in the service as provided herein will not exceed six months from the date the enlistment contract or period of service expires, except in the most unusual and meritorious cases, when recommended by the soldier's immediate commanding officer and approved by the next higher authority.

#### Bibliography

(1) AR 35-2480 23 May 42 Payment of Enlisted Men Upon Separation from the Service.

(2) A.R. 345-125 1 Feb 32 Military Records, Service Records.

(3) A.R. 615-360 25 May 44 Enlisted Men—Discharge, Release from active duty.

## DEATH OF MILITARY PERSONNEL

It is imperative that every Army officer have a good working knowledge of the action to be taken in the event of death of military personnel within his unit.

**Within the United States** the wheels are put in motion by the report of the post surgeon on WD, AGO Form 52-5. This form requires information regarding the cause of death, line of duty and misconduct status. Some of this information may not be known at the time of death. In this event, the post surgeon will prepare Form 52-5 with the information he has available and supplement it later by a complete report. Copies of this form are sent immediately after death occurs to the post commander and the company commander. Action by the post commander will consist of four main duties: a) notification of the Service Command commander giving the name, grade, Army serial number, organization, station, length of service, date of active duty, additional pay, line of duty status, misconduct status, and whether or not an investigating officer has been appointed, the name, relationship and address of the beneficiary, the name, relationship and address of the emergency addressee and a statement that such addressee has been notified. Home address and date of birth of the deceased, b) notification of the Adjutant General giving same information as to the Service command. c) notification of the nearest of kin by telegram including the fact, date, place and cause of death. Inquiry is made whether or not it is desired that the remains be shipped home and if so information regarding the destination and consignee is requested. Care must be taken in this telegram that no mention is made as to the line of duty status or misconduct status and d) Appointment of any investigating officer and/or a summary court officer. These two officers may be one and the same; a disinterested officer, preferrably of field grade.

Upon receipt of Form 52-5 from the post surgeon, the immediate commanding officer should assemble all of the government equipment and personal effects in the supply room, turning in his issue equipment and listing all articles of personal effects for later delivery to the summary court officer. Then comes the letter of sympathy to the nearest kin by the immediate commanding officer of the deceased, a very important and a very difficult duty. The commanding officer may inform the next of kin of the fact, date, place and cause of death, but he too must stay strictly away from the line of duty or misconduct status. Name and address

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of officers to whom applications should be made for effects, settlement of accounts and pensions may also be stated in the letter.

Whenever the post commander disapproves or disagrees with the medical officer's report (Form 52-5) as to the line of duty or misconduct status or when the death is suspected to be due to foul play, violent or unnatural causes, misconduct, negligence or sudden unknown causes, he will appoint an investigating officer to determine the facts as required by WD, AGO Form 51. Death due to battle, plane accidents, athletics or maneuvers are considered as being in line of duty unless accompanied by misconduct or negligence. When it appears to the post commander that the death was due to foul play, to unnatural causes or when the cause is unknown, he will appoint a summary court officer with a view of uncovering all the facts attending the death and bringing the person criminally responsible to justice. When the nearest of kin of the deceased is not immediately available the summary court officer will handle the personal effects of the deceased by preparing a WD, AGO Form 54 (Inventory of Effects) and delivering the effects to the nearest of kin at Government expense. When circumstances warrant the summary court officer will also administer the military estate of the deceased by receiving all debts and obligations payable to the estate, and by paying, from available funds, all debts and obligations owed by the estate.

It may be well for all concerned to realize just what expenses the Government will allow in the case of deceased military personnel. Here is a condensed list: embalming and preparation, cost of casket, cost of outer box, hire of hearse, flag—which incidentally, may be retained by the nearest of kin, new clothing if necessary, transportation of body to next of kin or national cemetery, transportation of next of kin from place of death to place of burial, expenses involved incident to the recovery of the body, and interment expenses. The latter not to exceed fifty dollars. These expenses may be paid at the time by the government or may be paid by the nearest of kin in some instances who may later be reimbursed by the Government upon presentation of the proper claim, together with a receipted bill from the appropriate agency.

Some doubt has arisen as to what happens to the identification tags of deceased military personnel. Both stay on the body except where shipment of the remains is involved in which case one is tacked on the outer box. In the event the subject dies overseas, one remains on the body and one is tacked to the grave marker.

If the nearest of kin does not desire to accompany the body home as mentioned above, a person of equal rank with that of the deceased may be appointed to accompany the body at Government expense. This person is to help the nearest of kin in any way in which he can before and during the interment. He should take with him the death certificate of the medical officer which states that death was or was not due to contagious or infectious disease. He will also have the burial permit when and if required.

**Outside The United States.** In the case of death overseas, the procedure is much the same with a few variations. Upon the surgeon's report of death, the fact of death is transmitted through military channels until it reaches the Adjutant General. This is the official notification of death and authorizes the payment of the death gratuity. The Adjutant General in this case is responsible for both the notification by telegram and the letter of sympathy.

The summary court officer is here too responsible for collecting, listing on Form 54, and packaging the personal effects of the deceased. None of this property will be sold but shipped to the Army Effects Quartermaster, Kansas City, Mo., which will clean and ship all personal effects to the nearest of kin.

The shipment of remains from overseas stations is not permitted in time of war. At the present time it is the responsibility of the graves registration officer to properly mark and record the location of each overseas grave, and to report such location through channels to A.G.'s office in Washington.

The death gratuity referred to above is an amount of money equal to six month's pay (as distinguished from allowances) of the deceased which is payable upon death of military personnel to certain classes of beneficiaries in all but a few cases. The rule is that a line of duty status of No. AR 35-1440 or No. AW 107 will prohibit the payment of the death gratuity. These include such things as diseases or injuries directly attributable to intemperate use of alcoholic liquor or habit-forming drugs.

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All military personnel are encouraged to designate as beneficiary the person they wish to receive the death gratuity in the event of their death. Some persons however fail to take care of this small detail and as a result the payment of many gratuities is unnecessarily delayed.

Immediately upon official notification of death, not the result of his own misconduct, the Director, Office Special Settlement Accounts, New York or the Fiscal offices in overseas theaters will authorize the proper disbursing officer to pay the death gratuity to an eligible beneficiary. The death gratuity may be paid to the widow, or, if there is no widow, to the child or children or if there is no widow or child, to any other dependent relative previously designated by him. The term child is not to be construed to include any married child, or unmarried child over 21 years of age who is not actually dependent upon such deceased military personnel. No affirmative showing of dependency will be required in making payment to fathers, mothers, brothers or sisters designated as beneficiaries of deceased military personnel who had an insurable interest in the life of the deceased by reason of relationship alone, but, as to more distant relatives, more evidence of insurable interest will be required. If there is no widow, child, or previously designated dependent relative, the Secretary of War shall cause the amount provided to be paid to any grandchild, parent, brother or sister, or grandparent shown to have been dependent upon such military personnel prior to his death, and the determination of such fact by the Secretary of War shall be final and conclusive upon the accounting officers of the Government.

As the name "gratuity" suggests, this is a gift, and the officer or enlisted person has no vested rights in it and cannot designate by will to whom it will be paid. As there is no vested right in this gratuity, it is not subject to civil or military debts or obligations.

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AR 600-550, 23 Dec 44—Personnel, Deceased
AR 35-1540, 19 Dec 1942—Gratuity Upon Death and Settlement of Arrears of Pay
W.D. Cir 195, 1 Sep 1943—Casualties
W.D. Pamphlet 21-5, Personal Affairs of Military Personnel.

## EFFICIENCY RATINGS AND REPORTS ON OFFICERS AND WARRANT OFFICERS

### Introduction

Any officer who is the immediate military superior of one or more commissioned officers or warrant officers will be required, at certain times, to render a rating of their efficiency. There are two ways in which routine comments on the efficiency of officers and warrant officers are made. One is by entry of an *efficiency rating* on the officer's W.D.A.G.O. Form No. 66-1 (Officer's and Warrant Officer's Qualification Card). The other is by rendition of an efficiency report as prescribed in Army Regulations 600-185.

### Efficiency Ratings

Item 15 of W.D.A.G.O. Form No. 66-1 is entitled "Record of Service." Under this item is entered information on periods of principal duty fulfilled by the officer or warrant officer for whom the card is kept. Item 15 is divided into five columns, entitled "Type of Duty," "Unit, Organization or Station," "Dates (From) (To)," "Manner of Performance," and "Initials."

Efficiency ratings on the given officer or warrant officer will be entered in the column enlisted "Manner of Performance." There are five possible ratings: "SUP" for superior, "E" for excellent, "VS" for very satisfactory, "S" for satisfactory, and "U" for unsatisfactory. Whenever an entry of "U" is made, an efficiency report must be rendered, in accord with Paragraph 3, Army Regulation 600-185.

The procedure in making entries under Item 15 (Record of Service) is as follows:

Whenever an officer is detailed or assigned to a principal duty, an entry in pencil will be made under Item 15 of W.D. A.G.O. Form No. 66-1 in the columns entitled "Type of Duty," "Unit, Organization or Station," and "Dates." Only the principal duty of the officer will be indicated, even though one or more types of duty will be performed in the period covered by the entry. Thus if Lieutenant Smith is assigned to the position of company executive officer and in addition serves as mess officer, only the former duty would be listed.

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(1) NAME: MORALES (LAST NAME) RICHARD (FIRST NAME) H (MIDDLE NAME)
(2) SERIAL NUMBER: 0-456423
(3) ARM OR SERVICE: ORD
(4) COMPONENT: AUS
(5) HEIGHT: FT. 5 IN. 9
(6) WEIGHT: LBS. 155
(7) DATE OF BIRTH: 4 AUG 1916
(8) RACE: W
(9) WAR SERVICE: —
(10) C.C.C. SERVICE: —
(11) ASSIGNMENT LIMITATIONS: ARTHRITIS — AUTHORITY: DISP. BD., 36TH GH 2 DEC 43
(12) SERVICE OR RESIDENCE OUTSIDE CONTINENTAL U. S.: —
(13) ENTRY ON EXTENDED ACTIVE DUTY: AUTHORITY: PAR. 2 S.O. 87 HQ ORD SCH DATE 7 APR 42 — DATE OF ENTRY: 11 APR 1942
(14) GRADE: APG, MD.

(14)-(T) GRADE—APPOINTMENTS AND PROMOTIONS

| | WARRANT OFFICER (JUNIOR GRADE) | CHIEF WARRANT OFFICER | 2ND LIEUTENANT | 1ST LIEUTENANT | CAPTAIN | MAJOR | LT. COLONEL | COLONEL |
|---|---|---|---|---|---|---|---|---|
| DATE APPOINTED OR PROMOTED | | | 11 APR 42 | 9 JAN 43 | 18 APR 44 | | | |
| DATE OF RANK IN GRADE | | | 11 APR 42 | 9 JAN 43 | 18 APR 44 | | | |

(15)-(T) RECORD OF SERVICE (ONLY PRINCIPAL DUTY)

| TYPE OF DUTY | UNIT, ORGANIZATION OR STATION | DATES FROM | DATES TO | Manner of Performance | INITIALS |
|---|---|---|---|---|---|
| (FOR ENLISTED EXPERIENCE SEE 31) | | | | | |
| ASST AUTO MAINT | 153RD ORD CO (LM) | 4-11-42 | 6-7-42 | S | ABG |
| AUTOMOTIVE O | 241ST ORD CO (MM) | 6-8-42 | 7-31-42 | VS | AFR |
| STUDENT O | ORD SCH, APG, MD | 8-1-42 | 9-30-42 | | |
| | BASED ON ACADEMIC RATING | | | E | RM |
| AUTOMOTIVE O | 241ST ORD CO (MM) | 10-1-42 | 12-31-42 | E | AFR |
| AUTOMOTIVE O | 241ST ORD CO (MM) | 1-1-43 | 2-14-43 | E | AFR |
| AUTO REPAIR O | 902ND ORD HAM CO | 2-15-43 | 6-30-43 | VS | HOM |
| AUTO REPAIR O | 902ND ORD HAM CO | 7-1-43 | 10-19-43 | E | HOM |
| PATIENT | 36TH GEN HOSP | 10-20-43 | 12-4-43 | | UNRATED |
| | APO # 269 | | | | |
| ENROUTE TO | U.S. & LEAVE | 12-5-43 | 1-9-44 | | UNRATED |
| NO ASSGD DUTY | OORP, APG, MD. | 1-10-44 | 1-17-44 | | UNRATED |
| INSTR, AUTO | ORD SCH, APG, MD. | 1-18-44 | 6-30-44 | E | AIH |

(16)-(T) SPECIAL SERVICE SCHOOLS

| DATES FROM | DATES TO | SCHOOL | COURSE | Successful Completion (Yes or No) |
|---|---|---|---|---|
| 1-42 | 4-42 | ORD OCS, APG, MD | OC (5 WK AUTOMOTIVE) | ✓ |
| 8-1-42 | 9-30-42 | ORD SCH, APG, MD. | AUTOMOTIVE | ✓ |

(17)-(T) GENERAL SERVICE SCHOOLS —

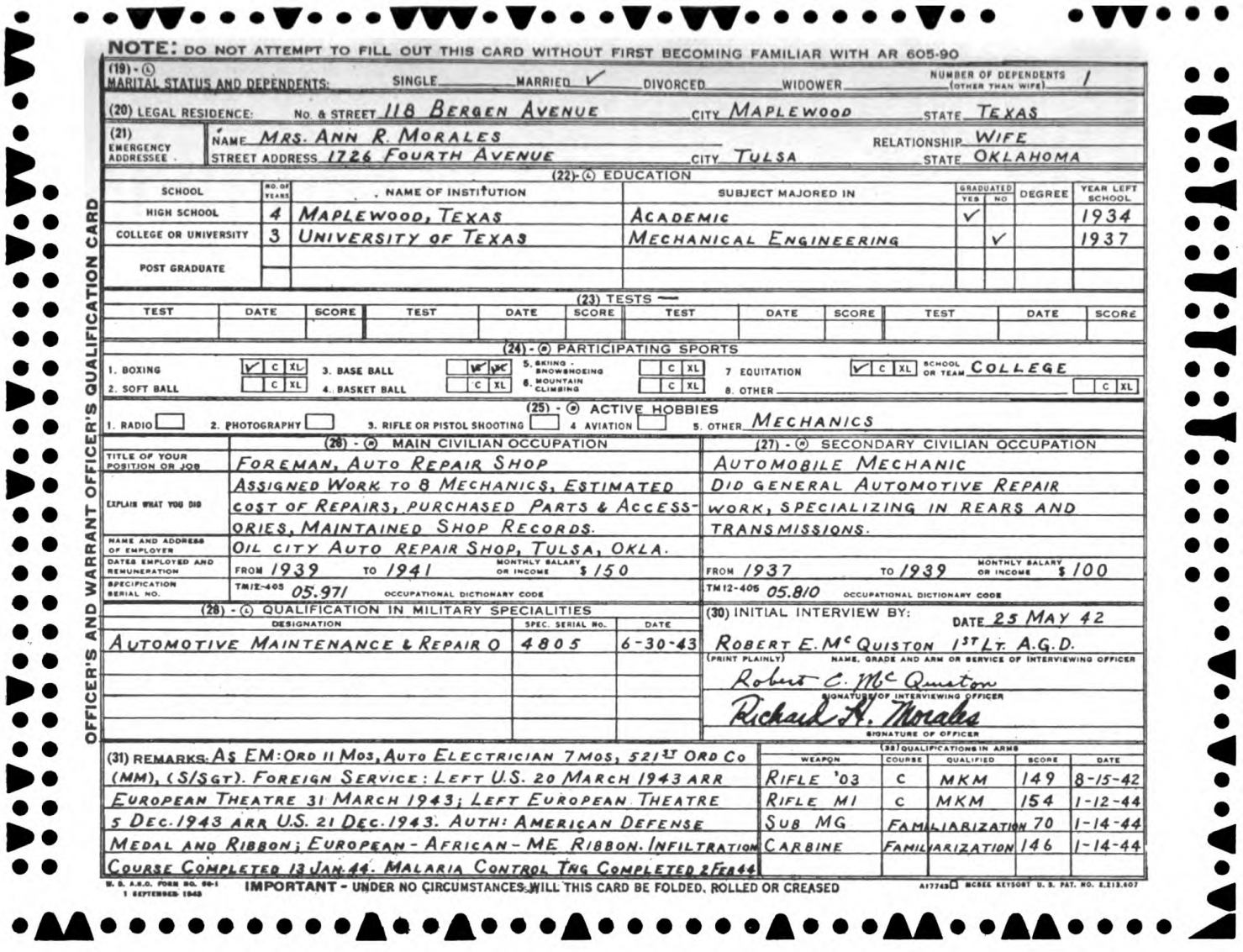
| COMMAND AND GENERAL STAFF SCHOOL | ARMY WAR COLLEGE | ARMY INDUSTRIAL COLLEGE | NAVAL WAR COLLEGE |
|---|---|---|---|
| YEAR AND COURSE | YEAR | YEAR | YEAR |

(18)-(T) LANGUAGES

| | SPANISH | FRENCH | GERMAN | CHINESE | RUSSIAN | JAPANESE | OTHER |
|---|---|---|---|---|---|---|---|
| SPEAK | LIT | | | | | | SOME |
| WRITE | LIT | | | | | | LIT |
| TRANSLATE | LIT | | | | | | SOME |

(18) SPECIAL SERVICE SCHOOLS
(19) LANGUAGES
(20) MILITARY SPECIALTIES
(21) GEN. SER. SCHOOLS
(22) EDUCATION
(23) MARITAL STATUS
(24) DEPENDENTS
(25) ARM OR SERVICE
(26) MAIN CIVILIAN OCCUPATION
(27) SECONDARY CIV. OCCUPATION

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**NOTE:** DO NOT ATTEMPT TO FILL OUT THIS CARD WITHOUT FIRST BECOMING FAMILIAR WITH AR 605-90

OFFICER'S AND WARRANT OFFICER'S QUALIFICATION CARD

(19) - (L) MARITAL STATUS AND DEPENDENTS: SINGLE ____ MARRIED ✓ DIVORCED ____ WIDOWER ____ NUMBER OF DEPENDENTS (OTHER THAN WIFE) 1

(20) LEGAL RESIDENCE: No. & STREET 118 BERGEN AVENUE CITY MAPLEWOOD STATE TEXAS

(21) EMERGENCY ADDRESSEE: NAME MRS. ANN R. MORALES RELATIONSHIP WIFE
STREET ADDRESS 1726 FOURTH AVENUE CITY TULSA STATE OKLAHOMA

(22) - (L) EDUCATION

| SCHOOL | NO. OF YEARS | NAME OF INSTITUTION | SUBJECT MAJORED IN | GRADUATED YES | GRADUATED NO | DEGREE | YEAR LEFT SCHOOL |
|---|---|---|---|---|---|---|---|
| HIGH SCHOOL | 4 | MAPLEWOOD, TEXAS | ACADEMIC | ✓ | | | 1934 |
| COLLEGE OR UNIVERSITY | 3 | UNIVERSITY OF TEXAS | MECHANICAL ENGINEERING | | ✓ | | 1937 |
| POST GRADUATE | | | | | | | |

(23) TESTS —

| TEST | DATE | SCORE | TEST | DATE | SCORE | TEST | DATE | SCORE | TEST | DATE | SCORE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |

(24) - (P) PARTICIPATING SPORTS

1. BOXING ✓ C XL
2. SOFT BALL ____ C XL
3. BASE BALL ____ ✓ C XL
4. BASKET BALL ____ C XL
5. SKIING - SNOWSHOEING ____ C XL
6. MOUNTAIN CLIMBING ____ C XL
7. EQUITATION ✓ C XL
8. OTHER ____ C XL
SCHOOL OR TEAM COLLEGE

(25) - (P) ACTIVE HOBBIES

1. RADIO ____ 2. PHOTOGRAPHY ____ 3. RIFLE OR PISTOL SHOOTING ____ 4. AVIATION ____ 5. OTHER MECHANICS

| | (26) - (P) MAIN CIVILIAN OCCUPATION | (27) - (P) SECONDARY CIVILIAN OCCUPATION |
|---|---|---|
| TITLE OF YOUR POSITION OR JOB | FOREMAN, AUTO REPAIR SHOP | AUTOMOBILE MECHANIC |
| EXPLAIN WHAT YOU DID | ASSIGNED WORK TO 8 MECHANICS, ESTIMATED COST OF REPAIRS, PURCHASED PARTS & ACCESSORIES, MAINTAINED SHOP RECORDS. | DID GENERAL AUTOMOTIVE REPAIR WORK, SPECIALIZING IN REARS AND TRANSMISSIONS. |
| NAME AND ADDRESS OF EMPLOYER | OIL CITY AUTO REPAIR SHOP, TULSA, OKLA. | |
| DATES EMPLOYED AND REMUNERATION | FROM 1939 TO 1941 MONTHLY SALARY OR INCOME $150 | FROM 1937 TO 1939 MONTHLY SALARY OR INCOME $100 |
| SPECIFICATION SERIAL NO. | TM 12-405 05.971 OCCUPATIONAL DICTIONARY CODE | TM 12-405 05.810 OCCUPATIONAL DICTIONARY CODE |

(28) - (L) QUALIFICATION IN MILITARY SPECIALITIES

| DESIGNATION | SPEC. SERIAL NO. | DATE |
|---|---|---|
| AUTOMOTIVE MAINTENANCE & REPAIR O | 4805 | 6-30-43 |
| | | |
| | | |
| | | |
| | | |

(30) INITIAL INTERVIEW BY: DATE 25 MAY 42

ROBERT E. McQUISTON 1ST LT. A.G.D.
(PRINT PLAINLY) NAME, GRADE AND ARM OR SERVICE OF INTERVIEWING OFFICER

Robert C. McQuiston
SIGNATURE OF INTERVIEWING OFFICER

Richard R. Morales
SIGNATURE OF OFFICER

(31) REMARKS: AS EM: ORD 11 MO3, AUTO ELECTRICIAN 7 MOS, 521ST ORD CO (MM), (S/SGT). FOREIGN SERVICE: LEFT U.S. 20 MARCH 1943 ARR EUROPEAN THEATRE 31 MARCH 1943; LEFT EUROPEAN THEATRE 5 DEC. 1943 ARR U.S. 21 DEC. 1943. AUTH: AMERICAN DEFENSE MEDAL AND RIBBON; EUROPEAN - AFRICAN - ME RIBBON. INFILTRATION COURSE COMPLETED 13 JAN 44. MALARIA CONTROL THG COMPLETED 2 FEB 44

(32) QUALIFICATIONS IN ARMS

| WEAPON | COURSE | QUALIFIED | SCORE | DATE |
|---|---|---|---|---|
| RIFLE '03 | C | MKM | 149 | 8-15-42 |
| RIFLE M1 | C | MKM | 154 | 1-12-44 |
| SUB MG | FAMILIARIZATION | | 70 | 1-14-44 |
| CARBINE | FAMILIARIZATION | | 146 | 1-14-44 |
| | | | | |

W. D. A.G.O. FORM NO. 66-1
1 SEPTEMBER 1943

IMPORTANT - UNDER NO CIRCUMSTANCES WILL THIS CARD BE FOLDED, ROLLED OR CREASED

A17743 MCBEE KEYSORT U. S. PAT. NO. 2,213,607

**W.D., A.G.O. Form No. 66-1 (Reverse side).**

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These pencil entries will be completed in ink, and an efficiency rating entered in the "Manner of Performance" column, on any one of five occasions:

First, whenever the officer's principal duty changes, after at least one month at such principal duty.

Second, whenever the officer is reassigned, after at least one month at his principal duty.

Third, whenever the superior officer who reports upon this officer is reassigned, after at least one month of principal duty has been performed.

Fourth, whenever an efficiency report is rendered under Army Regulations 600-185 (as described below).

Fifth, on June 30 and December 31 of each year, if the officer's service has been continuous and no ink entries have been made in the last three months.

Suppose an officer has completed less than one month at a principal duty, and he is assigned a different principal duty, or reassigned, or his immediate superior who renders reports upon his efficiency is reassigned. Must the pencil entries mentioned above be completed? No. However, an efficiency rating must be entered in the "Manner of Performance" column and initialed if the officer's service during this period has been characterized by meritorious performance of duty or lack thereof. The same is true if the nature of this principal duty was such as to be of value in the selection of the officer reported on for a future duty assignment.

By whom will the entries under Item 15 of W.D.A.G.O. Form No. 66-1 be made? Ordinarily the reporting officer will enter the "Manner of Performance" rating and place his initials in the "Initial" column. The custodian will make the entries in the other columns. However, the custodian may enter and initial the "Manner of Performance" rating where an efficiency report is the source of that rating. He may perform this function also when it is not practicable for the reporting officer to make the entry. In such case the reporting officer must by letter inform the custodian of the rating to be entered.

## EFFICIENCY REPORTS

*Forms.* According to Army Regulations 600-185, efficiency reports follow three forms: WD, AGO Form No. 67 (Efficiency Report), most commonly used; a letter form for reports on general officers; and a special school report used in reporting on students of special or general service schools.

The latter two forms will not be discussed here. Information regarding their preparation will be found in paragraphs 2a and 3c of the above Regulation.

*When Rendered.* An efficiency report will be rendered on every officer on 30 June and 31 December of each year, covering the prior six months. One will also be rendered for periods of greater than one month where general officers cease to serve under the direct command of the reporting officer. No report will be required in similar circumstances for officers other than those of general grade, but efficiency ratings will be entered on WD AGO Form 66-1 (Officer's and Warrant Officer's Qualification Card). When the entry on Form 66-1 is unfavorable, an efficiency report will be rendered.

An efficiency report may be rendered on an officer of any grade at any time if his service appears to have been unusual either through merit or lack of merit.

*Channels for Report.* Efficiency reports will ordinarily be rendered by the immediate military superior of the person upon whom the report is made. They will be made in duplicate and both copies signed by the reporting officer. These will be forwarded to his immediate superior within 10 days after the close of the period covered by the report. The latter will accomplish the first indorsement to the report and forward it direct to The Adjutant General. If the officer reported on is of the grade of colonel or higher, the report must pass through intermediate channels.

Whenever a report contains entries which may be considered unfavorable, it must be referred to the officer reported upon before being fowarded to The Adjutant General. The officer reported upon will, without delay, comment upon the entries by indorsement.

*Preparation of Efficiency Reports.* Efficiency reports are of such vital consequence to the officer reported upon that the greatest care must be exercised in their preparation.

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*Paragraph "A".* The date of the report, the organization where the report is being made, and its location are entered here.

*Paragraph "B".* Care must be exercised to show the correct name (as it appears on the official rolls of the Army), serial number, grade, and branch of service. The official status should show the relationship between the rating officer and the officer upon whom the report is rendered. Such a remark as "Plans and Training Officer of my battalion" would give sufficient information.

*Paragraph "C".* An accurate report of specific duties performed and stations served at during the period covered by the report.

*Paragraph "D".* The word picture here should be a thorough one, consistent with other entries on the report, but not a duplicate of them. Where the reporting officer has had no opportunity to observe the reported officer at his work, the entry should be "unknown". The rating of "satisfactory" should not be used to hide a lack of knowledge concerning an officer. Use of vague generalities such as "an excellent officer" or "a very good officer" is to be avoided.

*Paragraph "E".* In this paragraph the reporting officer checks the means used to obtain the information used in making the efficiency rating.

*Paragraph "F".* A check here indicates the reporting officer's attitude toward the officer being reported upon.

*Paragraph "G".* Here the officer is rated numerically on 10 qualities by assigning values of from —4 for "unsatisfactory" to +7 for a "superior rating". Instructions concerning the ratings are found on the back of the Efficiency Report.

*Paragraph "H".* Commendations may be attached to the efficiency report by reporting officers, military superiors, or other officers.

*Paragraph "I".* Not to be used for trivial offenses. In case of any disciplinary action, the original communication covering the matter and a record of any appeal and the action taken will be attached as part of the efficiency report.

*Paragraph "J".* If the reporting officer failed to bring an individual's deficiences to his attention prior to the rendition of the report, he will make the necessary explanation under "Remarks".

*Paragraph "K".* The net value in this paragraph is obtained by totaling the values assigned to the ten qualities in paragraph G.

*Paragraph "L".* There should be listed those non-military specialties which frequently add materially to an officer's value to the service.

*Paragraph "M".* The final numerical rating is obtained by dividing the net value (par. K) by the total number of qualities given a numerical rating.

*Paragraph "N".* The final adjectival rating may be determined by applying the following code to the final numerical rating (per M).

(1) Below 0 ..... Unsatisfactory (Unsat.)
(2) 0.0 to 1.99 ..... Satisfactory (Sat.)
(3) 2.0 to 3.49 ..... Very Satisfactory (V. S.)
(4) 3.5 to 5.49 ..... Excellent (Exc.)
(5) 5.5 to 7.0 ..... Superior (Sup.)

*Paragraph "O".* Before signing the report, the reporting officer should be certain that all paragraphs have been accurately completed according to instructions; that there are no omissions; and that any deletions or erasures are properly initialed.

BIBLIOGRAPHY

AR 600-185 Dated 15 Nov 44
Par 80, C3, AR 605-90, dated 28 January 1943
"Guide for Preparation and Forwarding of Efficiency Reports," accompanying letter 26 May 1938 AG 201.61 (3-28-38) Misc. M-A

## VETERANS ADMINISTRATION

Between November 1940 and February 1944, more than one million veterans of World War II were discharged from the armed forces. Currently Army and Navy discharges average 100,000 per month. Congress created the Veterans' Administration to see that discharged soldiers, especially disabled ones, get all the benefits provided by law for them.

The work of the Veterans Administration can be divided into seven separate phases: (1) operation of the National Service Life Insurance program; (2) opera-

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# EFFICIENCY REPORT

USE TYPEWRITER IF POSSIBLE IF NOT, PLEASE PRINT — PREPARE THIS REPORT WITH PAINSTAKING ACCURACY: ITS VALUE LIES IN THE DEGREE OF OBJECTIVITY, IMPARTIALITY AND SOUND CONSIDERED JUDGMENT DISPLAYED BY THE RATING OFFICER. READ INSTRUCTIONS — SEE AR 600-185

**A. PLACE OF ORIGIN OF REPORT**

| THEATER OR COMMAND | ORGANIZATION AND UNIT | DATE OF REPORT |
|---|---|---|
| Aberdeen Proving Ground, Md. | The Ordnance School | 2 Jan 45 |

**B. OFFICER REPORTED UPON**

| LAST NAME—FIRST NAME—MIDDLE INITIAL | SERIAL NUMBER | GRADE | ARM OR SERVICE | COMPONENT |
|---|---|---|---|---|
| STANTON, EDWIN A. | 01 557 975 | 2d Lt | Ord | AUS |

| DATE OF BIRTH | SERVICE Limited | SERVICE General | OFFICIAL STATUS OF OFFICER WITH RESPECT TO YOU | PERIOD COVERED BY REPORT | FROM | TO |
|---|---|---|---|---|---|---|
| 3 Feb 18 | | X | Platoon leader in my company | ➡ | 1 Jul 44 | 31 Dec 44 |

**C. STATIONS AT WHICH OFFICER SERVED AND DUTY ASSIGNMENTS**

| STATIONS | DUTY ASSIGNMENTS | DAYS | PLACE "X" IN BOX OR BOXES TO CLASSIFY DUTY: STAFF COMBAT | STAFF NOT COMBAT | COMMAND COMBAT | COMMAND NOT COMBAT | TRAINING | ADMIN. & EXEC. |
|---|---|---|---|---|---|---|---|---|
| 1. Fort Leonard Wood, Mo. | From 66-1, Company O, Exc. | 64 | | | | X | X | |
| 2. Aberdeen Proving Gd, Md. | Leave 6 days | 6 | | | | | | |
| 3. Aberdeen Proving Gd, Md. | Company Officer | 114 | | | | X | X | |
| 4. | | | | | | | | |
| 5. | | | | | | | | |

**D. WRITE A BRIEF GENERAL ESTIMATE OF THIS OFFICER.** REFER TO POINTS OF WEAKNESS AS WELL AS STRENGTH. UNFAVORABLE ENTRIES OF OPINION IN THIS ESTIMATE NEED NOT BE REFERRED TO THE OFFICER BEING RATED.

**A creative officer with an inquisitive mind who has the uncanny ability to visualize the necessity for corrective or other action; always one step ahead. Quiet in manner but resourceful, enthusiastic, ingenious and circumspect; inspires confidence.**

**E. ALL ENTRIES ARE FORMULATED ON THE FOLLOWING**

| BASED ON | X |
|---|---|
| INTIMATE DAILY CONTACT | X |
| FREQUENT OBSERVATION OF THE RESULTS OF HIS WORK | |
| INFREQUENT OBSERVATION OF THE RESULTS OF HIS WORK | |
| ACADEMIC RECORDS | |
| OFFICIAL REPORTS | |

**F. INDICATE YOUR ATTITUDE WOULD YOU**

| ATTITUDE | X |
|---|---|
| PARTICULARLY DESIRE HIM? | X |
| BE PLEASED TO HAVE HIM? | |
| BE SATISFIED TO HAVE HIM? | |
| PREFER NOT TO HAVE HIM? | |
| DEFINITELY NOT WANT HIM? | |

**G. WHAT DEGREE OF SUCCESS HAS HE ATTAINED UNDER THE FOLLOWING?** PLACE AN "X" IN THE APPROPRIATE SPACE TO DENOTE RATING. ENTER THE PROPER NUMERICAL VALUE IN THE APPROPRIATE COLUMN UNDER "TOTAL VALUE." NO VALUE SHOULD BE ENTERED FOR A RATING OF UNKNOWN. SEE INSTRUCTIONS ON THE REVERSE SIDE.

| RAT. / VAL. | Unsat. —4 | Sat. 1 | V. S. 2 | V. S. 3 | EXC. 4 | EXC. 5 | SUP. 6 | SUP. 7 | Unknown | TOTAL VALUE —Total | TOTAL VALUE +Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Physical Activity and Endurance | | | | | | | | X | | | 7 |
| 2. Stability Under Pressure | | | | | | | X | | | | 6 |
| 3. Attention to Duty | | | | | | | X | | | | 6 |
| 4. Cooperation | | | | | | | X | | | | 6 |
| 5. Initiative | | | | | | | X | | | | 6 |
| 6. Intelligence | | | | | | | X | | | | 6 |
| 7. Force | | | | | | | X | | | | 6 |
| 8. Judgment and Common Sense | | | | | | X | | | | | 5 |
| 9. Leadership | | | | | | | X | | | | 6 |
| 10. Ability to Obtain Results | | | | | | | X | | | | 6 |
| | | | | | | | | | Totals | -0 | +60 |
| | | | | | | | | | K. Net Value ➡ | | 60 |

**H.** Since last report has he been mentioned in official communications? Favorably Yes or No: **No** Unfavorably Yes or No: **No**

**I.** During the period covered by this report was he the subject of any disciplinary measure that should be included on his record? If so, enclose separate statement of nature and attendant circumstances. Yes or No: **No**

**J.** In case unfavorable entries have been made, other than in D and/or F, were the deficiencies brought to the officer's attention while under your command and prior to preparation of this report? Yes or No:

**L. OUTSTANDING SPECIALTIES OF VALUE IN MILITARY SERVICE.** MAKE NO ENTRIES EXCEPT WHERE STATEMENT IS BASED ON PERSONAL OBSERVATION OR OFFICIAL REPORTS. SHOW PILOT AND/OR OBSERVER RATINGS OF AIR CORPS OFFICERS.

Excellent knowledge of the language and customs of the French people.

**M.** Enter numerical rating using the following basis: Numerical rating equals the net value (K) divided by total numoer of entries for which a numerical rating was given. Numerical Rating ➡ **6.0**

**N.** Enter adjectival rating based on numerical rating (M) Use following code.

| | |
|---|---|
| Below 0 (—4) | —Unsatisfactory |
| 0.0 to 1.99 | —Satisfactory |
| 2.0 to 3.49 | —Very satisfactory |
| 3.5 to 5.49 | —Excellent |
| 5.5 to 7.0 | —Superior |

Adjectival Rating ➡ **Sup.**

**O. I CERTIFY** THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF ALL ENTIRES MADE HEREON ARE TRUE AND IMPARTIAL AND ARE IN ACCORDANCE WITH AR 600-185.

| INCLOSURES | SIGNATURE | TYPE NAME, GRADE AND ORGANIZATION | COMMANDING WHAT? |
|---|---|---|---|
| None | Roy E. Hall | ROY E. HALL, Capt, Ord Dept, Ord School | Co B, OOCS |

W. D., A. G. O. Form No. 67 27 September 1944 (This Form Supersedes W. D., A. G. O. Form No. 67, 2 July 1943, Which Will Not Be Used After Receipt of This Revision.) 16-39084-8

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tion of the Medical Treatment Plan for veterans; (3) operation of the Vocational Rehabilitation program; (4) handling disability pension claims; (5) handling the Death Pension Plan for dependents of veterans; (6) handling burial expenses payments for families of veterans; (7) in conjunction with other government agencies offering advisory assistance to veterans with reference to job placement.

The medical treatment plan provides three types of services: Out-patient treatment, hospital treatment, and domiciliary care. Out-patient treatment is provided only for honorably discharged veterans with service-connected disabilities. For a wounded veteran, or one who becomes sick while in service, hospital attention can be secured. However, he must have been honorably discharged from the last period of service.

Hospital service can also be provided for non-service connected disease or injuries if the man can prove he was not dishonorably discharged from his last period of war service if there is a bed available at a veterans hospital and if he makes a statement under oath that he is financially unable to supply himself with the necessary treatment.

As part of the medical treatment wherever necessary, artificial limbs and braces, and repair of medical aids, will be furnished. A war veteran is eligible for domiciliary care if he or she has not been dishonorably discharged, is unable to defray the expense of such care and is suffering from a disease or injury that incapacitates him or her from earning a living for a prospective period of time. The Facility may become the home of the veteran until such time as he or she can overcome the physical handicap and regain self-sufficiency.

If a veteran were on active duty after 6 December 1941 and since that date received an honorable discharge, and has a disability, incurred in or aggravated by such service, for which a pension is payable under the laws administered by the Veterans Administration and which can be overcome by vocational training, he or she may receive benefits administered under the Vocational Rehabilitation Program. This program provides vocational training for those meeting the eligibility rules stated above, for a period not to exceed four years and not extending over six years after the present emergency. This training will be given at elected state and civilian schools, tuition and other expenses to be met by the Administration. During authorized training a pension is payable at the rate of $80 per month to a single man, and $90 per month to a married man, with an added allotment of $5 per month for each dependent child and $10 for each dependent parent.

For those honorably discharged veterans with a disability of 10% or greater resulting from a disease or injury incurred or aggravated by service on or after 7 Dec 41, and during the war period, without misconduct on the part of the veteran, there are pensions ranging from $10 to $100 monthly, in multiples of $10, depending on the degree of disability. In special cases of complete helplessness, anatomical losses, or blindness, a special pension up to $250 per month may be paid. Certain specific injuries draw so-called statutory pensions, which are paid in addition to the amount paid for the percentage or degree of disability. For instance the statutory rate for blindness in one eye is only $35 per month, but as that particular disability is rated at 30% ($30), a veteran blind in one eye draws a total pension of $65 per month. Formal application to the Veterans Administration for these pensions is necessary.

Certain specific diseases also rate pensions, provided that they are not acquired through misconduct. These pensions last only as long as the disease causes a disability, and range in amount from $10 to $100. Pensions are never awarded while the man is still in service; he must be an honorably discharged veteran. The percentage of disability is always determined by a qualified VA Rating board, composed of a medical specialist, an occupational specialist, and a legal specialist. The percentage is based on an average degree of earning impairment, so that there may be no penalty on an individual for his ability to overcome the handicap caused by his disability. No pension of over $20 a month can be paid to any veteran without a wife, child, or dependent parents, who is in receipt of hospital or domiciliary care from any government facility.

Dependents of deceased veterans are eligible to receive survivors' pensions. The requirements are that the veteran must have died from some disease or injury incurred in line of duty while the United States was engaged in war. The only

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necessary papers to establish eligibility for a widow are, her marriage certificate; for a child, his or her birth certificate; for parents, the birth certificate of the veteran. Widows and children use one Veterans Administration form, while parents use another.

Burial expense payments to help defray the cost of burying honorably discharged veterans of any war will be made by the Veterans Administration. If the veteran was in receipt of hospital or domiciliary care at the time of his death, or died while traveling to or from a Veteran Facility for treatment, and the travel was authorized by the VA, then full expenses of burial will be met by the government. The veteran may be buried at any National Cemetery or VA Cemetery, or at any place of interment desired by his relatives. If a government contract undertaker is used, all expenses will be met by the government. If government contract services are not desired, then the government will pay up to $100, and certain travel expenses. In an honorably discharged veteran of any war dies when not hospitalized or being domiciled by the Veteran Administration, reimbursement for burial expenses, not to exceed $100, will be allowed, provided a claim is filed within two years of burial or cremation, and perfected by the submission of the necessary supporting evidence within one year from the date of request by the Veterans Administration therefor. A special Veterans Administration adjudication form must be filed by the person making claim for expenses.

When an honorably discharged veteran of any war or a person honorably discharged from the US Army after serving at least one enlistment or for disability incurred in line of duty dies, a flag to drape the casket shall be furnished in all cases. This flag is to be given to the next of kin after the burial of the Veteran. Flags may be obtained by any Veteran Administration Facility or regional office, or at any designated post office.

At the regional office of the Veterans Administration, or at the hospital from which he is discharged, an occupational specialist on the Test Rating Board will give initial advice and assistance to the veteran regarding job placement and employment opportunities. Every Selective Service Board has attached to it now a Reemployment Committeeman, who will act as the personal representative of the veteran in his home community to help in the process of reestablishing him after discharge. He is to assist in regaining former jobs, as provided by law, and in getting new jobs for veterans; he will act for the veteran with other government agencies concerned. The United States Employment Service is also at work on the problem of veteran reemployment; there is a Veterans Employment Representative in each local USES office. Special bonus grades are also given to veterans on competitive Civil Service examinations.

For further information all unit commanders can refer to the following list of references.

"Important Information for Veterans of World War II" a pamphlet published by the Veterans Administration.

War Department Pamphlet 21-4, "Information for Soldiers Going Back to Civilian Life," 9 Mar 44.

War Department Pamphlet 21-5, "Personal Affairs of Military Personnel and Aid for Their Dependents," 1 Apr 44.

War Department Circular No. 13, 10 Jan 44. Transmittal of Pension Applications and Related Records to The Veterans Administration.

## NATIONAL SERVICE LIFE INSURANCE

The National Service Life Insurance Act of 1940, approved 8 October 1940, established a new system of life insurance for persons who were in the active service in the land or naval forces, or who entered the service after that date. This insurance is designated, and should be referred to, as "National Service Life Insurance" (NSLI) to distinguish it from "United States Government Life Insurance", issued to veterans of the first World War. Both are forms of government insurance, but they are entirely separate and distinct and each is supported by an independent trust fund comprised of premium payments and earnings thereon. Persons entitled to apply for this new type insurance include all commissioned officers, warrant officers, nurses, and enlisted personnel who are going to be on active duty more than thirty-one days.

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All National Service Life Insurance policies are payable only in the event of the death of the insured while the insurance is in force. There are no policies that can be paid up and the benefits enjoyed by the insured himself.

The insurance is issued originally on a 5-year level premium term plan, with the privilege of conversion to or exchange for policies of National Service Life Insurance on ordinary life, 20-payment life, or 30-payment life plans, at any time after the 5-year level premium term policy has been in force for one year and within the five year term period. If the policy is not converted within the five year period the insurance ceases and terminates.

The 5-year level premium term policy provides for a level premium rate for a period of 60 months (five years) at the expiration of which it must be converted to one of the following types of policies. The ordinary life policy provides the maximum amount of permanent protection for the minimum level premium payment, which is payable throughout the lifetime of the insured. The twenty-payment life policy provides that premiums shall be payable for twenty years. At the end of this time premium payments cease and the insurance becomes paid up for the remainder of the insured's life for the face amount of the policy. The thirty-payment life policy provides that premiums shall be payable for thirty years. At the end of this period premium payments cease and the insurance becomes paid up for the remainder of the insured's life for the face amount of the policy.

Any eligible person may carry National Service Life Insurance in multiples of $500 in the amount of $1,000 to $10,000. These policies are free from all restrictions as to travel, residence, occupation, or military and naval service. There is no war clause in these insurance policies.

Any person eligible for this insurance may apply for it within the first one hundred and twenty days of service and is not required to take a physical examination. After that period, a physical examination is required.

There are three methods of converting the 5-year level premium term policy to one of the other three types of policies. Under the first method the new policy selected may be effective as of the date any premium becomes due, upon application and timely payment, within the five year term period, of the current monthly premium at the attained age of the insured. The reserve (if any) on the 5-year level premium term policy will be allowed as a credit on the current monthly premium on the new policy. Under the second plan, the new policy selected may be effective as of the date any premium has become due, upon application, and timely payment within the 5-year term period of the current monthly premium and the reserve on the policy selected less the reserve (if any) on the 5-year level premium term policy. The premium rate on the new policy will be the rate for the attained age of the insured, *i.e.*, the age of the insured on his birthday nearest the effective date of the new policy selected. Under the third plan, the new policy selected may be effective as of the same date as the 5-year level premium term policy, upon application and timely payment, within the five year term period of the current monthly premium and reserve on the policy selected, less the reserve (if any) on the 5-year level premium term policy. The premium rate on the new policy will be the rate for the age of the insured at which the 5-year level premium term policy was issued. The amount of reserve necessary to effect the conversion under the second and third plans will be furnished on request to the Director of Insurance of the Veterans Administration.

If the insured becomes totally disabled (prior to the age 60) he or his beneficiary may make application to the Veterans Administration to have his premiums waived. The Veterans Administration may at any time require proof of continuous total disability and when the insured is found not to be totally disabled the waiver ceases.

All policies other than the 5-year level premium term policy have non-forfeiture provisions. Cash value, paid up insurance, extended insurance, and policy loan provisions shall be effective at any time after the end of the first policy year on all the converted types of policies. All values, reserves, and net single premiums are based on the American experience table of mortality with interest at the rate of 3% per annum.

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Cash value. After the policy has been in effect for one full year application may be made to surrender the policy for its cash value.

Paid-up insurance. After the policy has been in effect for one full year, upon written request and surrender of the policy, the United States will issue paid-up insurance for such amount as the cash value, less indebtedness, will purchase.

Extended insurance (automatic premium payment by the government). At the end of the first policy year and any time thereafter, provided that the policy has not been surrendered for its cash value or to obtain paid-up insurance and the premiums are not paid, the policy shall be extended automatically as term insurance.

Policy loan. After the policy has been in effect for one full year and is not in default, a loan arrangement can be made with the Administrator of the National Life Insurance Plan. This loan can be made on any policy except the 5-year level. The loan may amount to 94% of the cash value of the policy less any indebtedness of the policy and the loan shall bear interest at the rate of 5% per annum payable annually.

The only way the right to benefit payments can be forfeited is when the insured is found guilty of mutiny, treason, spying, desertion, or refusal to perform service in land or naval forces, or refusal to wear the uniform. The insurance is not payable when death comes as the result of a lawful punishment unless inflicted by the enemy. The cash value, however, is paid the beneficiary when death is inflicted as lawful punishment.

All policies will participate in dividends from gains and savings. These dividends may be paid in cash or deposited for interest. The five year level term insurance policy holders participate in dividends, but they must take these dividends in cash. These dividends may be withdrawn by the insured at any time while the insurance is in force.

The beneficiary may be the wife, husband, child, (adopted, step, or illegitimate), parent (including persons in loco parentis), and brother or sister (including half-blood). These beneficiaries may be designated by application form or in writing at a later date after taking policies or, usually, at the time the policy is taken out. Contingent or alternate beneficiaries may also be named. It is necessary specifically to designate a stepchild, illegitimate child or guardian as a desired beneficiary, for in the absence of such specific designation the benefits will go to blood relatives of the insured. Your last will and testament may name the original beneficiary but may not change a beneficiary named earlier. The beneficiary may be changed at any time by the insured without the consent of the beneficiary. This must be accomplished by notice of change made to the Veterans Administration in writing and must properly identify the insured.

Upon proof of death, accrued monthly installments since death and subsequent installments will be paid to beneficiary or beneficiaries as follows: When the beneficiary is under thirty years of age at date of death, payments shall be made in 240 equal monthly installments at the rate of $5.51 for each $1,000 of insurance. When the beneficiary is thirty years or older, payment shall be made for 120 months certain and for the remaining lifetime of the beneficiary. Amounts of payment are based upon the age of the beneficiary upon death of the insured. Upon proof of death after at least one installment has been paid to the first beneficiary, the remaining installments will be paid to the new beneficiary at the rates based on the age of the original beneficiary. If no beneficiary is named or if the named beneficiaries should die, payments shall be made to persons in the following order: widow, or widower of the insured if living, children in equal shares, parents in equal shares, and brothers and sisters in equal shares (includes half-blood).

This National Service Life Insurance may lapse under the following conditions: Whenever the premium is not paid when due or within the grace period. The grace period for payment of premiums is 31 days after due date of premium. No interest is charged and the policy remains in full force during the grace period. The insurance may also lapse if there is a failure to elect a method of payment in applying for the insurance; if insufficient accrued pay is left to cover the insurance allotment; if a signed request is sent in to cancel the allotment; if a signed request is sent in to cancel the insurance; or if a man collects his pay with knowledge that a deduction for his premium has not been made.

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For personnel about to be discharged from the service or who are totally disabled while in the service the following information should be furnished (Circ. 336, WD, 28 Dec 43). They should make arrangements to continue the insurance and pay premiums after leaving the service. They have the right to convert their 5-year term insurance to one of the permanent types of converted policies. The report of separation will give date of allotment discontinuance, amount of premium, and information where to remit next premium and to have the first premium remitted as a civilian accompanied by a letter setting forth all facts concerning discharge. All personnel who are permanently disabled should be acquainted with the waiver of premium rights which are allowed them and how to apply for such a waiver.

For personnel who are discharged to accept a commission a discontinuance of the old insurance allotment is necessary and a new authorization of allotment giving new rank and serial number is necessary.

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Insurance Form 398, *Information and Premium Rates, National Service Life Insurance, Published by the Veterans Administration 1941.*

*War Department Pamphlet No. 21-5, Personal Affairs of Military Personnel and Aid for Their Dependents, War Department, 1 Apr 44.*

*Circular No. 135, War Department, 8 Apr 44*—Information Concerning Government Life Insurance to be furnished all Military Personnel upon discharge.

*Circular No. 336, 28 Dec 43, War Department*—Information concerning Government Life Insurance to be furnished all Military Personnol upon Discharge.

## "GI BILL OF RIGHTS"

The "GI Bill of Rights" further increases the responsibilities of the Veterans Administration by decreeing that the provisions and new benefits created by this law will be administered by that agency.

This Act provides that the Secretaries of War and the Navy be directed to set up boards of review of five members each for the purpose of reviewing the type discharge received by any enlisted man or officer, unless the discharge was received by sentence of a general court-martial. After examining all records and hearing any witnesses brought before it by the petitioner or his counsel (including representatives of veterans' organizations), the board will have the power to correct a discharge or dismissal, provided such petition and evidence are presented to the board within fifteen years after discharge or passage of this act, whichever date is more recent. Upon petition of the officer concerned, boards of five officers, two of whom should be members of the medical corps of the Army, Navy or Public Health Service, will be created for the purpose of reviewing the decisions of boards who retired officers for physical disability without pay. These boards shall have the same powers as the original retiring boards in their findings and subsequent actions. The decisions confirming or revising those of the original retirement board will be transmitted, through the secretaries of Army, Navy, or Treasury to the President for his approval or disapproval and issuance of orders. This petition must be made within fifteen years after retirement or passage of this act, whichever is later.

The four main features of the new bill are the provisions relating to the education of veterans; loans for the purchase or construction of homes, farms, and business property; employment of veterans; and readjustment allowances for former members of the Armed Forces who are unemployed.

**Education.** It is provided that any person who served in the active military or naval service for at least ninety days, last day of service being on or after Sepember 16, 1940, prior to the termination of the present war and whose education or training was impeded or interrupted by reason of his entrance into the service, or who desires a refresher or retraining course, shall be eligible to receive education or training. Persons discharged for disability prior to 90 days service will have the provisions relating to 90 days' necessary service waived. This ninety days of service must be in addition to any time served as a student in the Army Specialized Training Program or any other con-



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tinuation of civilian training provided by the Army. Any person who was under the age of twenty-five at the time of entrance into the service shall be deemed to have had his education interrupted or impeded.

Any such eligible person shall be entitled to at least one year of additional education at any approved educational or training institution or such lesser time as may be required to finish the course selected. Upon the completion of one year's work, the person shall be entitled to additional training for a period equal to the time spent in the service between September 16, 1940 and the termination of the war. Up to $500 a year will be paid to the educational institution for tuition, laboratory fees, books, and other necessary materials. A subsistence allowance of fifty dollars a month shall be paid by the government to these persons if they are without a dependent, and seventy-five dollars a month to those eligible persons with a dependent or dependents. Training will be available at all public or private elementary, secondary, and other schools furnishing education for adults, at all business schools and colleges, scientific and technical institutions, colleges, vocational schools, junior colleges, teachers' colleges, normal schools, professional schools, universities, and other educational institutions. This will also include business and establishments providing apprentice or other "on-the-job training."

Any eligible veteran must begin his educational training within two years after release from the service, and the training cannot extend beyond seven years after release from the service.

**Loans.** Any person who served for ninety days after September 16, 1940, (this provision is disregarded for those receiving disability discharge) and who received other than a dishonorable discharge, may apply to the Administrator of Veterans' Affairs for a guaranty by the Administration on not more than 50 per centum of a loan, or loans, for the purchase or construction of homes, farms, and business property. This application must be made within two years after release from the service or termination of the war, whichever is later. The application cannot be made, in any event, more than five years after the termination of the war. The aggregate amount of the loan guaranteed cannot exceed $2,000. Interest on that part of the loan guaranteed by the Veterans Administration for the first year shall be paid by the Administration. No security for the guaranty shall be required, except the right to be subrogated to the lien rights of the holder of the obligation which is guaranteed.

Loans guaranteed by the Administration must bear interest at a rate not to exceed 4%, and must be payable in full in not more than twenty years.

Employment of Veterans. This act also decrees that an effective service shall be provided in job counseling and employment placement for veterans. Therefore the act creates a Veterans' Placement Service Board, which will cooperate with and assist the United States Employment Service.

**Unemployment Compensation.** Any person who served in the armed forces after September 16, 1940, for a period of more than ninety days, and did not receive a dishonorable discharge (period of service waived if discharge was for physical disability), shall be entitled to receive a readjustment allowance for each week of unemployment occurring not later than two years after discharge or release or the termination of the war, whichever is the later date. It is provided, however, that no readjustment allowance will be paid while a veteran is receiving an educational allowance, or for any period of unemployment beginning more than five years after the cessation of hostilities.

If it is found upon investigation that the applicant is living within the United States and is totally unemployed or receiving an income of less than three dollars a week and meets the above requirements, he may receive the allowance. The person must manifest a desire to work by reporting to the public employment office, and must be able to work and available for suitable work. Also, in order to be eligible, the applicant must show that he did not leave suitable work voluntarily and without good cause, was not discharged for misconduct, has not refused suitable work referred to him, and has not refused free training courses offered to make him eligible for suitable work. Also, he must not be unemployed as a result of participation in a strike. This denial of the allowance because of the latter cause cannot be extended by the Administration more than eight weeks at any one time.

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The allowance for one week shall be $20, less that part of the wages payable to him for such week which is in excess of $3. For each calendar month, or major fraction thereof, of active service, the veteran shall be entitled to four weeks of allowances, but in no event will he receive allowances for a period longer than fifty-two weeks. The intervals at which the readjustment allowances will be paid will be according to the state unemployment compensation statutes. If no unemployment compensation statutes exist in the state, then the Administration shall determine reasonable periods for payment. Any payments remaining unpaid upon the death of the claimant shall not be considered assets of the estate of the claimant. If a veteran was self-employed, and can show that he earned less than $100 in the last calendar month, he shall be entitled to a readjustment allowance which will bring his income up to $100 for the month. Payments will be made in the same manner as those made to veterans who are not self-employed.

The provisions of this act relating to readjustment allowances will be carried out through existing state unemployment compensation agencies. These agencies may be designated by the Administrator of the Veterans Administration. It is also provided that these agencies in general will set the standards as to eligibility in so far as they are only mentioned generally in the act, and these standards will, of course, be subject to the review of the Administration.

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## SOLDIERS' AND SAILORS' CIVIL RELIEF ACT

The Soldiers' and Sailors' Civil Relief Act was passed by Congress in 1940 to provide a reasonable amount of security for the serviceman with regard to his personal responsibilities. In general, however, relief is afforded only when it can be shown that the serviceman's inability to fulfill his obligation is actually due to his being in the military service. The Act expressly denies protection to servicemen who make transfers of property or contract rights with the intent to take unfair advantage of the Act. It is within the discretion of a court administering the Act to decide whether the intent of the parties is bona fide.

Any person in the military service is entitled to seek the benefits of the Act. In addition, officers of the Public Health Service detailed for duty with our troops, and former U. S. citizens now serving with our Allies are eligible. The protection of the Act commences when the person is ordered to report for induction, and ceases on his death or discharge unless the Act expires before then. It is also extended to persons who are in training under supervision of the United States, preliminary to induction into the service.

The Act applies only to a serviceman's civil liabilities; it has nothing to do with any criminal offenses he may have committed. Thus it affords no relief from fines or sentences imposed by any government agency.

All the provisions of the Act are not covered in the following discussion. Some, of highly technical nature or of unimportant consequence, have been omitted.

**Stay of Obligations.** If Pvt. Brown made a contract *before* entry into the military service, and now finds his service materially impairs his ability to perform the contract, he may apply to a court for a stay of enforcement. His application may be in person, or by another person for him and may be made while he is in service, or within six months thereafter. Similarly, if he became liable to someone on other than contract grounds before entering the service, he may apply for a stay of enforcement of that liability.

**Lawsuits Against a Serviceman.** Since the passage of this Act, no plaintiff can get a default judgment in any lawsuit in our civil courts without first filing an affidavit showing that the defendant is not a member of the military service. If it happens that the defendant is a serviceman, and no such affidavit can be filed, an attorney must be appointed by the court to protect the absent defendant's interests, before the suit can proceed. This attorney cannot waive any of the defendant's rights in the case, nor can he bind the defendant by any of his actions. His sole function is to help the defendant.

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There are additional forms of protection available to a serviceman who is the target of a lawsuit. If Pvt. Black is sued, he may while in service or within 60 days after discharge have the whole suit stayed by showing the court that his being in the service materially impairs his ability to defend himself. Or, if this is not done, and the court goes ahead and renders a judgment against Pvt. Black. he may ask for a stay of execution of the judgment. If granted, this means that he will not have to pay the plaintiff the amount of his judgment until three months after leaving the service.

But what if a lawsuit is brought against Pvt. Black, and before he can defend himself, the plaintiff succeeds in getting a judgment, and executes the judgment by attaching and selling some of Black's property? Pvt. Black has still one more ace up his sleeve. He may, at any time while in service or up to three months after leaving it, apply to the court to have the case re-opened. Then, if he can show that he had a good defense to the lawsuit (which would have won him the suit had he been able to present it) but was prevented from presenting it by reason of being in the service, he can get his judgment-money back.

**Statute of Limitations.** The Soldiers' and Sailors' Civil Relief Act provides that the Statute of Limitations period will not run against a plaintiff while the person he wishes to sue is in the military service.

**Rent Default.** If the dependents of a serviceman are occupying a dwelling where the rent does not exceed $80.00 per month, and the serviceman defaults in rent payments, a court may stay eviction of the dependents for as long as three months. However, it must be shown that the serviceman's being in the service materially impairs his ability to pay the rent.

As a protection to the landlord, the Civil Relief Act provides that in necessary cases the Secretary of War may order an allotment of the pay of a serviceman to pay rent.

**Termination of Lease.** If Pvt. Green before entering the military service leased some property from Thomas Jones, he (Green) may terminate that lease at any time after entering the service. The termination, in the case of a lease calling for monthly rent payments, will take effect thirty days from the next payment date after written notice is given to Jones. Thus if the lease provided for payment on the 10th of each month, and Green, after entering the service, notified Jones on the 11th of May that he was breaking the lease, Green would have to continue to pay rent until the 10th of July.

**Mortgages and Trust Deeds.** If an individual has incurred a debt at some time before entering the service, and has given a mortgage or trust deed on some property as security for the debt, the Act provides that a court may stay any foreclosure proceedings the holder of the mortgage or deed may bring. It must of course be shown by the individual seeking the stay of foreclosure that his being in the service seriously interferes with his paying off the obligation.

**Storage Liens.** By law, when property is stored with a warehouseman at a fixed charge, and the owner defaults on paying this charge, the warehouseman has a lien on the property, which he can enforce by selling it and paying his charges out of the proceeds. Under the Act, if Pvt. White before entering the military service stores his household goods, furniture, or personal effects with Henry Jones, and then defaults in payment of storage charges because of his being in the service, he can apply to a court for a stay of execution of Jones' lien.

**Life Insurance.** After Pvt. Green has entered the military forces he may find that he is unable to continue paying the premiums on his civilian life insurance. Does the Soldiers' and Sailors' Act offer him any means of keeping it from lapsing?

If Green's policies were in force less than 30 days at the time he entered the service, the answer is no. The one exception to this rule is where Green entered the service before 6 Oct. 1942, the date of the Act. In the latter case the Act will give protection to his policies even though they were in force less than 30 days at the time he joined.

If Green's policies contain clauses limiting the coverage or requiring higher premium payments in the event he enters the armed services, the answer is no. To be eligible for the protection of the Act, Green's policies must afford him the same face value coverage at the same premium rates as they did while he was a civilian.

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If Green's policies were issued under the War Risk Insurance Act, or the World War Veterans Act, or the National Service Life Insurance Act, the Act does not protect him.

Assuming that Pvt. Green's policies have jumped all these hurdles, he may apply to the Veteran's Administration, Washington, D. C., for the benefits of the Act. This application must be submitted before the policies have lapsed, however. The policies must still be in full force. If Pvt. Green is unable to submit the application, it may be made by a person designated by him; or, if Green is outside the United States, the beneficiary may submit an application.

Once the Veteran's Administration has accepted the application, the provisions of the Act take effect as follows: Pvt. Green's policies may not be lapsed or terminated for non-payment of premiums, indebtedness, or interest, at any time during his period of military service or for two years afterward. The Government guarantees payment of the premiums.

This does not mean, however, that Pvt. Green is permanently freed of these obligations. He is supposed to pay to the insurance company all the premiums on which he defaulted, with interest thereon, not later than the end of the two-year period mentioned above. If he fails to meet this deadline, then one of two courses of action will be followed: If the amount Green owes on the premiums and interest is not larger than the cash surrender value of the policy, the insurance company will just treat Green's debt as a policy loan, which he must pay off like any policy loan. But if the amount Green owes exceeds the cash surrender value of the policy, the policy will terminate and Green will have to make good the difference between the premiums he owes and the cash surrender value.

What if Green should die while his policies are under the protection of the Act? His beneficiaries will collect the face value of each policy, minus any amounts of premiums and interest guaranteed by the Government under this Act.

The Act provides for a definite limitation on the protection offered under these provisions. The maximum amount of insurance that can be brought under the Act by any serviceman is $10,000.

**Income Taxes.** If the military service materially impairs a serviceman's ability to pay his income taxes, payment may be deferred until six months after termination of that service.

Any person who dies in active military service of the United States or United Nations on or after 7 December 1941 is excused from liability for Federal income tax for the year of his death. In addition, any tax for previous years that is unpaid at the time of his death is forgiven, and if by mistake paid after his death, will be refunded.

**Other Taxes.** Should Pvt. White find that he is unable, by reason of his being in the service, to pay the taxes on any real or personal property he owns, and the taxing body threatens to force a sale or other proceeding to collect, White may get a court order staying the action. This stay may be for as long as six months after he leaves the service.

**Interest.** No person in the military service can be required to pay more than 6% interest on any obligation he incurred before entering the service, unless a court directs it. If Pvt. Black before joining the Army agreed to pay 10% on $200 he borrowed from the X Loan Company, the latter cannot make him pay over 6% unless it proves to a court that Black's military service doesn't materially impair his ability to pay the extra 4%.

**Certain Land Rights.** The Soldiers' and Sailors' Civil Relief Act affords protection to persons who have, prior to entry into military service, acquired or started to acquire grazing, mining, homestead, desert-land, or irrigation rights on tracts of land. It operates to excuse them from doing the amount of work and spending the amount of money required by statute to perfect the claim, while they are in the service and for a specified period afterwards.

The Act further provides that death or physical incapacity due to service will automatically perfect the requirements remaining to be performed to secure a patent for a homestead on which the serviceman's dependents have been living.

And finally, the Act extends to all servicemen under the age of 21 years the rights with relation to perfecting of claims on public lands that persons of 21 years and over possess.

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## ARMY EMERGENCY RELIEF AND RED CROSS

Army Emergency Relief was organized by the War Department and functions within the Army to relieve financial distress of soldiers and their dependents. Cases are administered through Army Emergency Relief officers and American Red Cross field directors at posts, camps, and stations and through local Red Cross chapters in communities where dependents apply for aid. Necessary funds are furnished commanders at posts and stations. In order to prevent duplication of effort, an operating agreement was reached between Army Emergency Relief and the American Red Cross and except at posts and camps, all Army Emergency Relief centers were discontinued and their functions transferred to the American Red Cross. This agreement provided that Army Emergency Relief Funds would be used through the Red Cross or retained by Army Emergency Relief as a trust fund after the war.

The Red Cross assumed direct responsibility for basic maintenance of dependents during their period of awaiting the receipt of allotments and allowances or other government benefits. The American Red Cross may apply for Army Emergency Relief Funds only in emergencies and to meet special cases which are not covered in Red Cross functions. Applications for Army Emergency Relief Funds must channel through the American Red Cross and be made to their offices. However, in unusual cases the Commanding Officer of the Post may authorize expenditures of Army Emergency Relief Funds.

Funds for relief are derived from contributions, memberships in the organization, which are available to soldiers and civilians, and the proceeds of authorized entertainments and benefits. Relief may be in the form of loans on which no interest is charged, or by grant when the recipient is without means to repay.

Soldiers may apply for financial assistance to the Red Cross Field director or the Army Emergency Relief officer located at posts, camps, and stations, or, if away from their stations, to the nearest Red Cross chapter or the Red Cross field director or Army Emergency Relief officer at the nearest camp or post. Dependents, when in need should ask for assistance at the Red Cross chapter nearest their community. When the application is made by dependents, they should be prepared to give the soldier's name, serial number and station.

The American Red Cross was created by the Congress of the United States to furnish volunteer aid to the sick and wounded of the armies in time of war and to act in matters of voluntary relief and in accord with the military and naval authorities as a medium of communication between the people of the United States of American and their Army and Navy. It has performed its function admirably, unstintingly and unselfishly.

Its scope and functions are so far flung that many of them can only be mentioned in this discussion. The services have been expanded depending upon the needs of the Armed Forces, and their trained staff with special skills are prepared to go everywhere with our troops at home or abroad.

## SPECIFIC FUNCTIONS

Service to the able bodied include:

1. Consultation and guidance in personal and family problems.
2. Helping soldiers and their families to communicate with each other.
3. Helping to obtain information as to location and welfare of soldiers and their families.
4. Providing loans and grants for emergency passes or furloughs on account of sickness or death at home, after verification of the need to return home by the nearest American Red Cross local chapter representative and the approval of the soldier's Commanding Officer.
5. Providing or arranging financial assistance for soldiers' families.
6. Conducting confidential investigations of home conditions at request of Commanding Officers in matters of discharge, relief from active duty and furlough.

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7. Providing information and assistance on matters of allotments, allowances, and the civil rights of soldiers and their dependents in conjunction with the Army Personal Affairs Branch.

8. Furnishing confidential reports to Commanding Officers at their request on social, economic and health facts pertaining to soldiers and their families.

9. Providing information and assistance on Federal and State legislation regarding allowances, pensions, civil relief and providing help in securing such benefits.

10. Referring soldiers and their families to appropriate agencies for legal or psychiatric help.

11. Transmitting funds to dependents from soldiers overseas.

12. Aiding military authorities by securing and providing information regarding missing or captured men (overseas only). This function is aided by similar national societies in other countries through the "Comité International de Sécours."

13. Furnishing comfort articles overseas if need is established.

14. Furnishing emergency needs for athletic equipment overseas but not to duplicate the work of the War Department in this matter.

## HOSPITAL SERVICE

The Red Cross is the only volunteer society authorized to render aid to the medical department of the Army. Its hospital service includes:

1. Helping patients adjust social, economic and family problems.

2. Obtaining social histories and medical data at request of medical officers.

3. When recommended by medical officers and where home conditions justify, making loans or grants so soldiers can take convalescent furloughs.

4. Providing comfort articles for patients without funds.

5. Planning and directing medically approved group recreation for bed patients and convalescents.

6. Providing trained volunteers to do errands for patients and take part in their recreational activities.

7. Representing the Commanding Officer in coordinating efforts of civilian groups seeking to serve the hospital.

8. Communicating with families of critically ill soldiers giving additional information such as the patient's personal situation and write follow up letters at suitable intervals.

9. Writing families of men who die in hospital, giving information as approved by medical officers and in addition to government notification.

10. Providing comfort and care of relatives who visit hospital patients, particularly those summoned because of serious illness.

11. Assisting soldiers unable to carry on their own correspondence.

12. Providing forms and information to discharged service men and dependents concerning Federal and State benefits.

13. Certifying as to the availability of a nurse for a commission.

## PRISONERS OF WAR

Through the International Red Cross, the American agency obtains information regarding the health and well being of prisoners of war and supplies them with food, medicines, clothing and other necessities. It also furnishes books, magazines, writing paper and recreational kits. Inquiries from relatives and friends are channeled through the American Red Cross and the exchange of correspondence between prisoners and their families is another function facilitated by the Red Cross. Packages sent to the prisoners by relatives and friends are handled by the American Red Cross who expedite and insure their delivery to the proper persons.

## USE OF THE AMERICAN RED CROSS BY COMMANDING OFFICERS

Commanding officers should resort to the American Red Cross whenever necessary to obtain information regarding their men and should urge soldiers to take advantage of Red Cross facilities. Commanding officers should remember, however, that the reports made to him must not be revealed to anyone as the matters are strictly confidential. Furthermore, confidential discussions between the soldier and the American Red Cross may not be revealed to the military authorities and in order to aid the Red Cross, this should be respected to the fullest

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extent. The Red Cross will not usurp or interfere with purely military matters and therefore soldiers requesting extension of furlough through the Red Cross will be referred to their commanding officer. They will not grant preembarkation loans until the loans are approved by commanding officers. This is done only in unusual circumstances and only after a full and thorough investigation of the need by the Red Cross.

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## POWERS OF ATTORNEY, WILLS, AND JOINT BANK ACCOUNTS

### POWERS OF ATTORNEY

On many occasions a service man may desire to have someone act on his behalf as his agent in buying, selling, or leasing property, or in managing his business affairs. This may be accomplished by the execution of a power of attorney. The person to whom the power is granted is called the 'attorney-in-fact,' but this does not mean that he must be a member of the legal profession. It is a common requirement that he be 21 years of age or over and of sound mind.

If the grantor wishes to give his attorney-in-fact the authority to do anything that he (the grantor) himself could do respecting his business and property, he should execute a general power of attorney. This gives the attorney-in-fact an unrestricted hand in dealing with the grantor's business and property. Needless to say, such broad powers should be given only to a person in whom the grantor has the utmost confidence.

Should the grantor desire to give his attorney-in-fact the authority to do only certain named acts on his behalf, he would execute a special power of attorney. Thus he might grant to his automobile dealer the power to sell his car, or to his banker to sell certain securities, or to his wife to collect debts owed him, etc.

Once a power of attorney has been executed, it remains in effect as long as the grantor lives, unless it specifically states a date of expiration, or the grantor later revokes it in a document executed with the same formalities as the original power of attorney. Death of the grantor automatically terminates a power of attorney; therefore it is useless to try to make provision for anything to be done by the attorney-in-fact after your death.

If you desire to grant a power of attorney, you should secure the aid of competent legal counsel. The Legal Assistance personnel are well qualified to help you. You may also write to a lawyer in your home community, stating just what powers you wish to convey, and have him draw up and mail an instrument for you to fill out and sign.

### JOINT BANK ACCOUNTS

A serviceman who wishes his wife, another dependent, or his business associate, to have ready access to his money, may set up a joint account at his bank. This will allow each person to make deposits and withdrawals without the consent of the other. In most states the deposits are the joint property of both persons, so that on the death of one, all the funds are automatically the sole property of the survivor. However, some states freeze the account temporarily on the death of one of the depositors, to await determination of taxes.

### WILLS

A serviceman whose total property holdings consist of cash and easily transferable securities such as War Bonds, and who possesses only one beneficiary, has little need for a will. The cash may be placed in a joint bank account (see above) and the bonds may be indorsed over to his wife or other dependent. However, if the man holds other property of value and has several beneficiaries and wants to be sure that in the event of his death it will be distributed in accordance with his wishes, he should have a will drawn up.

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## SUGGESTED STANDARD FORM OF WILL FOR SERVICEMEN*

I, ....., of .....
(Name of soldier) (Town and state of legal residence)
now in the active military service of the United States and stationed at .....
....., hereby revoking any and all prior wills or any part thereof, do devise and bequeath all of my estate to .....,
(Name of beneficiary)
my ....., for {his / her} own use and benefit forever. I here-
(Relationship, if any)
(* This form may in an emergency be torn out and filled in as a will).
by appoint ..... my {executor / executrix} without bond, with full power to sell, mortgage, lease, or in any way dispose of the whole or any part of my estate.

(SEAL) .....
(Signature of soldier in presence of all witnesses)

Signed, published, and declared by .....
(Name of soldier)
the testator above named, as and for his last will and testament in the presence of each of us, who at his request and in his presence, in the presence of each other, at the same time, have hereunto subscribed our names as witnesses this ..... day of ....., 19...., at .....
(Town, state and country where executed)

1. ....., .....
(Name and serial No. of witness) (Permanent address in U. S. A.)
2. ....., .....
(Name and serial No. of witness) (Permanent address in U. S. A.)
3. ....., .....
(Name and serial No. of witness) (Permanent address in U. S. A.)

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AR35-1040 (Finance Dept.: Vouchers Pertaining to Money Accounts).
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## LEGAL ASSISTANCE

The Legal Assistance Offices in the Army are sponsored jointly by the War Department and the American Bar Association. In order to insure that their work meets the high standards of the legal profession and also the strict requirements of the Army, the work is supervised by the Judge Advocate General, the Staff Judge Advocates of the various service commands and the Committee of War Work of the American Bar Association. The Legal Assistance Offices are established by the commanding generals of service commands, commanding officers of posts, camps, and stations, and commanding officers of other installations, overseas or in the United States, wherever it is considered necessary. The Commanding General of a service command may also set up a centrally located office, which he will supervise, to serve several neighboring small commands and transient personnel.

The director of each Legal Assistance Office will be the Staff Judge Advocate of the command creating the office. He will assign and appoint a Legal Assistance Officer. The Legal Assistance Officer will supervise, direct and control the operation of the office in accordance with good legal practice and the policies of the commanding officer subject to the supervision of the Judge Advocate General and the Staff Judge Advocate. A good Legal Assistance Officer will maintain contact with the State Committee on War Work of the American Bar Association in order to obtain help of designated civilian lawyers. The duties of a legal assistant officer include maintaining liaison with these designated civilian lawyers and interviewing, advising and assisting military personnel in all matters of a legal nature. To aid the Legal Assistance Officer in his work, the State Bar Association Committee on War Work has selected civilian lawyers of the highest standing in their profession. These lawyers visit the Legal Assistance Office when necessary and are ready to help anyone referred to them by the Legal Assistance Officer. Mili-

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tary personnel of a Legal Assistance Office may not appear before civil courts, boards or commissions on behalf of those who come for aid and advice. In only exceptional circumstances will they render service anywhere but at the Legal Assistance Office.

Military personnel should not hesitate to bring their legal difficulties to the office as every matter discussed is held to be of a confidential nature. Despite the fact that the lawyer and his client are both in uniform, the usual attorney-client relationship is maintained and all matters discussed and office files are privileged in a legal rather than a military sense. These matters will not be discussed with anyone except with the permission of the person concerned. Furthermore, this disclosure cannot be ordered even by superior military authority. There are certain limitations, however, on the use of the Legal Assistance service. It is not intended that advice will be given to individuals who are or probably will be the subject of court-martial investigation or charges. The Army has an adequate system whereby such persons will receive the full benefit of the law and protection from the regularly appointed Trial Judge Advocate and Defense Counsel, or counsel of his own choice.

To avoid such conflict, Legal Assistance Officers have been ordered not to receive such confidences or to give advice in such matters unless they have been authorized by competent orders to defend such personnel pursuant to the Articles of War.

Legal Assistance Offices will never act as a collection agency, but military personnel and their dependents and civilian personnel actually employed on a military reservation or in overseas installations may secure practically any other form of legal assistance such as:

1. Preparation of wills, power of attorney, bills of sale, deeds and similar legal papers.
2. Advice on matters of divorce, allotments, rights of divorced wives and husbands.
3. Advice on matters of legal actions by or against the soldier, rights under the Soldiers' and Sailors' Civil Relief Act, Income Tax laws, and any other law pertaining particularly to the Armed Services.

REFERENCES

WD Circ 111 29 Apr 43—Legal Advice and Assistance for Military Personnel.
WD Circ 156, 8 Jul 43—Legal Advice and Assistance for Military Personnel.
WD Pamphlet 21-5—Personal Affairs of Military Personnel and Aid for their Dependents. 1 Apr 44.

## ADMINISTRATIVE INVESTIGATIONS

### General

A Commanding Officer has within his authority the right to exercise extensive administrative and punitive powers. This authority vests in the Commanding Officer the ability to make decisions which may, for instance, lead to a soldier's discharge, or deprive him of a claim against the government or may ultimately lead to his confinement and loss of pay.

In most instances the responsibility of formulating the correct decision rests with the Commanding Officer and cannot be delegated by him to anyone else. Naturally, however, the Commanding Officer himself does not have the time personally to study and inquire into all the facts which must be known in the interests of justice.

Any Commanding Officer may properly appoint an investigating officer to determine any fact or set of facts. Army regulations require certain facts to be investigated and generally these regulations set forth the appointing authority of the investigating officer or board. Customarily the regulation will state that the investigating officer will be appointed by the Commanding Officer of the Post, Camp, or Station, or by the regimental commander.

Let us look at a few of the typical situations requiring investigation. Suppose a soldier is driving a government truck. He runs into the back of a private automobile and damages the truck and the automobile. The driver of the automobile, also a soldier, is injured. A friend, another soldier who was in the car, is killed. Look at the matters that require investigation.

1st—The death of the soldier.

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2nd—The injury of the other soldier.

3rd—A report of survey will be needed of the damage to the government truck.

4th—The soldier whose auto was smashed *may* have a claim against the truck driver under AW 105.

5th—Court-martial charges may possibly require investigation.

It was formerly the practice to require separate investigations for each situation. Miscellaneous boards of officers, line of duty boards, and surveying officers, were getting in each others way, scrambling for the facts, evidences of which frequently had disappeared by the time the various investigating groups were appointed.

## CLAIMS OFFICERS

Army Regulation 25-20 is the basic regulation for the payment of claims. It provides for the appointment of claims officers within the United States, its territories and territorial possessions.

* * *

The regulation outlines the procedure to be followed during the investigation, requires that testimony be reduced to writing, prescribes the manner of ascertaining amount of loss or damage and outlines in detail the preparation of the report of investigation.

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AR 20-30 Investigations

AR 25-20 Claims, Investigation of Accidents; General Provisions

AR 25-25 Claims for Damage to or Loss or Destruction of Property, or for Personal Injury, or Death, Incident to Noncombat Activities of the War Department or of the Army

AR 25-80 Claims under the One Hundred Fifth Article of War

AR 25-90 Claims for Damage to or Loss or Destruction of Property or for Personal Injury or Death Caused by Army Forces in Foreign Countries

AR 25-100 Claims of Personnel for Property Lost, Damaged, Destroyed, Captured, or Abandoned in the Service


## FEDERAL INCOME TAX

Is it necessary for a member of the Armed Forces of the United States to file a Federal Income Tax Return? And must he pay a Federal Income Tax? The answer to both questions is "Yes", *provided* that he receives sufficient income within the taxable year to require a tax. In addition, he may have to file a state income tax if the laws of his state of domicile so require.

**Filing of Federal Income Tax Return.** The serviceman must file his Federal Income Tax Return at the same time (15th of March of each year) and in the same manner as a civilian, and is subject to the same penalties for failure to do so. However, if at the time the return is due he is on active duty outside the Americas or outside the continental United States (the states and District of Columbia), or on sea duty, he may postpone filing the return and making payment of the tax until the 15th of the fourth month following the month in which he ceases to serve on sea duty or to serve outside the continental limits of the United States, but not beyond the 15th day of the third month following the month in which the war ends.

If the serviceman is entitled to postpone the filing of his return as above stated, his civilian wife, if any, is entitled to the same postponement if her gross income for the year 1943 is less than $1200.

**Paying of Federal Income Tax.** If a member of the armed forces is not entitled to postpone the filing of his return or the paying of his tax as above stated, but finds that his ability to pay income taxes has been materially impaired because of his service, he may request the Collector of Internal Revenue to grant a deferment of payment of the tax. The deferment granted may be for a period of not more than six months after the termination of his military service. The application for a deferment may be in the form of a letter, and may be filed with the return, or it may be submitted to the Collector in reply to a notice and demand from that official for payment, or even in answer to the issuance of a warrant for distraint. The collector is authorized to require such proof of impairment of ability as may be advisable.

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If the deferment is granted, no interest will be charged on the deferred tax, and no penalty is incurred for nonpayment of this amount during the period of deferment. The deferment of payment does not, however, postpone the time for filing an income tax return.

**Other benefits to servicemen.** In addition to the filing of income tax returns, the serviceman must, if he has anticipated income in excess of the exemptions (see below), file a Declaration of Estimated Tax and pay quarterly installments of tax based upon such estimates. For the calendar year 1944 and subsequent years, the declaration is due not later than the 15th of March of such taxable year, and the quarterly payments of estimated tax for that year will start at that time.

The active service pay of a person in the military service is not subject to the withholding tax at the source as contrasted with the ordinary case of a private employer withholding a part of the weekly wages of the employee for the payment of anticipated income tax. However, the serviceman, if he has sufficient income, must estimate and pay his tax quarterly in advance. Under the conditions relieving him temporarily from the filing of his regular return (when serving overseas or on sea duty) and the paying of his tax, he may defer the filing of his Declaration of Estimated Tax. Where the filing of a declaration for 1943 was deferred beyond 31 December 1943 under this extension, no declaration need be filed for that year if the taxpayer filed his income tax return and paid the tax in full on or before 15 March 1944.

In determining the gross income of the serviceman, a special exclusion from gross income has been granted by reason of his military service. The term "gross income", when used with respect to the taxable year 1942, includes all active service pay of officers, but does not include the first $250 of such pay of an individual who was an enlisted man and single on the last day of the taxable year 1942, nor the first $300 of such pay of an individual who was an enlisted man and married or the head of a family on the last day of the taxable year of 1942. The term "gross income", when used with respect to the taxable year 1943 and subsequent taxable years, does not include the first $1500 of the active service pay of any military personnel.

The amounts contributed by the Government to the service man's "monthly family allowance" are in the nature of gifts by the Government and need not be included in gross income. Other income which need not be reported as part of gross income is as follows:

A. Value of subsistence and quarters furnished in kind.
B. Money rental allowance where quarters are not furnished in kind.
C. Money subsistence allowance where subsistence is not furnished in kind.
D. Per diem allowance in lieu of subsistence paid to an officer traveling on official business away from post of duty.
E. Uniforms furnished in kind.
F. Allowances received by Army personnel for uniforms.
G. Pensions received by family of veteran for services rendered by him.
H. Value of travel furnished in kind to discharged enlisted men.
I. Gratuitous medical or hospital treatment provided by Government in Government hospitals.

In the case of any person who dies on or after 7 December 1941, while in the active service as a member of the military forces of the United States, and prior to the termination of the present war as proclaimed by the President, the income and victory taxes will not apply with respect to his income for the year in which his death occurs. The income and victory taxes for preceding taxable years which remain unpaid at the date of death will not be assessed; but if such taxes are paid subsequent to the date of his death, such payment will be credited or refunded as an overpayment. Such cancellation, credit, or refund will apply also to any interest or penalties which may have been added to the tax.

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# CHAPTER 3

# MILITARY LAW

## TYPES OF MILITARY JURISDICTION

Military law in a broad sense may be described as all rules of conduct administered by military authorities. The term thus embraces the rules for governing the Army itself as well as the laws effective in time of war or grave public emergency within jurisdictions under military government or martial law. These rules of conduct are applicable when by the Constitution or International Law military authorities have the power to pass judgments or make decisions affecting the rights and liberties of persons subject to such jurisdiction. This power exists under:

1. *Military government.* Government set up by military forces generally in occupied enemy territory.
2. *Martial Law.* Temporary government by military forces over domestic or friendly territory to supplement civil authority in time of actual or imminent uprising against the government.
3. *Military law.* The rules for the governing of the Army.

## MILITARY GOVERNMENT

The term Military Government describes the authority exercised by the armed forces over the land, property, and individuals of enemy territory occupied by force or by agreement in which the armed force has substituted its authority for that of the previous government.

Military government arises by reason of military necessity, or as an obligation to the occupied country imposed by international law. The chief purpose of such control is naturally to facilitate the military operation; but since the occupation suspends the functioning of the existing civil government, International Law has imposed the obligation on the occupying forces to restore and maintain public order.

The authority for establishing military government is vested in the occupying force by International Law, and mere occupation or an agreement such as an armistice, a convention, or a treaty is sufficient to justify its establishment. The period of time during which the control may be maintained varies according to the exigencies of the situation. Circumstances such as national policy relative to the occupied area and the degree of cooperation of the inhabitants are only a few of the determining factors. Another variance is the degree of control. Under all conditions it is desirable that in return for obedience the inhabitants will be granted freedom from unnecessary interference with individual liberty and property rights. The control is likely to be much more rigid immediately upon occupation than will be required after hostile officials have been discovered and removed.

While one generally associates military government with occupied enemy territory such control is not limited to that alone. Cognizance of the twofold purpose of military government, *i.e.*, military necessity and the obligation to the inhabitants to maintain order, indicates that other situations require the exercise of such authority. Military necessity particularly may require its establishment in:

(1) Allied or neutral territory which has been dominated or occupied by the enemy.

(2) Technically neutral or allied territory which is actually unfriendly or hostile.

(3) Genuinely allied or neutral territory, the occupation of which is essential to a military operation.

(4) Domestic territory recovered from enemy occupation or from rebels treated as belligerents.

The responsibility for the administration of military government is vested in the military commander. Naturally, the successful accomplishment of the mili-

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tary objective requires that the commander control all the activities in the area under his command, and so he is the military governor. His paramount interest is, however, the military operation. Therefore, the army and navy have trained civil affairs officers who will serve under the military commander to effect the restoration of law and order.

In World War II the joint chiefs of staff of the United States Army and Navy and the combined chiefs of staff of the United States and its allies determine the responsibility in specified areas. For instance in Italy, the administration of the military government which is known as AMG or Allied Military Government, is the joint function of American and British civil affairs officers. As between the Army and the Navy, it is the general rule that the Army maintains responsibility in continental areas while the Navy assumes control in island areas and some ports and other areas contiguous to the sea. But this is not an inflexible rule.

In the early phases of the Italian campaign, for instance, responsibility for civil affairs was established as follows: General Eisenhower specifically designated British General Alexander as the military governor. Serving as his two Army commanders were Generals Patton and Montgomery who held full responsibility in their zones and gave orders to their corps commanders. Yet even the division commanders were responsible for civil affairs in their respective areas. To each of these units there were assigned civil affairs officers. Later when occupation of substantial Italian territory was assured, the area was divided into four regions: (1) Sicily, (2) Southern Italy, (3) Naples, and (4) Rome. Each region had its chief civil affairs officer and a staff of American and British officers trained in government, law, labor, and a diversity of other desirable specialties.

Within the War Department there has been designated the Civil Affairs Division which formulates the policy of civil administration. The actual organization for civil affairs planning and control in theaters of operation is governed by such variables as the mission of the theater commander, the military situation, economic factors, and the nature of the inhabitants themselves. Generally speaking there are two types of organizations for civil affairs administration within the theaters of operation; these are operational and territorial.

In the operational type, commanders of combat units or of military administrative areas are responsible for civil affairs within their own zones of operation. The relationship of civil affairs officers in this type to civil affairs officers of higher or lower echelons is simply that prescribed for staff officers. This is the type generally used upon initial occupation.

In the territorial form there is created a separate civil affairs organization under the direct command of the theater commander. Here the chief civil affairs officer operates the military government under supervision of the military governor. He is in command of subordinate civil affairs officers who administer the political subdivisions within the territory. The subordinate civil affairs officers in this type are not responsible to operational unit commanders stationed in the area but deal directly with higher civil affairs officers.

No hard and fast rule is devised concerning which type of control will be established at a particular time or place. In fact the system adopted in some instances may involve features of both types. Logically, of course, the operational type is more suitable to an active combat area. When settled conditions are achieved, then the territorial type is generally more suitable. One of the determining factors which must certainly have motivated the War and Navy Departments to make provisions for civil affairs officers was the desire to relieve other military and naval personnel from the tasks now performed by the civil affairs officers. The purpose has been achieved. With the exception of military police, little or no combat or service forces are utilized by civil affairs officers in the administration of military government. Use of combat troops to supplant or reinforce local police is undesirable, but will of course be made when it is necessary. The military police performing duties in support of civil affairs officers will sometimes be assigned under the command of the civil affairs officer; more often they are under the command of the commander of the combat unit.

A simple listing of the functions of civil affairs officers set out in the United

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States Army and Navy Manual of Military Government and Civil Affairs clearly indicates the tremendous burden assumed by civil affairs officers and the consequent relief from additional responsibilities of the immediate military commander. These functions include:

a. Political Government and Administration.
b. Maintenance of Law and Order.
c. Operation of Courts and Law.
d. Civilian Defense.
e. Civilian Supply.
f. Preservation of Public Health and Sanitation.
g. Censorship.
h. Maintenance of Civilian Communications Facilities.
i. Control and Supervision of Transportation Facilities.
j. Performance of Port Duties.
k. Maintenance of Public Utilities.
l. Supervision of Money and Banking.
m. Supervision of Public Finance.
n. Establishment of Commodity Control, Prices, and Rationing.
o. Encouragement of Agricultural Production.
p. Supervision of Industry and Manufacture.
q. Stimulation of Commerce and Trade.
r. Procurement of Civilian Labor.
s. Maintenance, Custody, and Administration of Property.
t. Dissemination of Information.
u. Control, Disposition, Repatriation, or Relocation of Displaced Persons and Enemy Nationals.
v. Supervision of Education.
w. Supervision of Public Welfare.
x. Maintenance of Records.
y. Miscellaneous.

Almost at the inception of military government in a particular area there will be published a proclamation informing the inhabitants of the fact of occupation, the extent of territory affected and the obligations, liabilities, duties and rights of the people. It will indicate the scope of control and will probably indicate that in general local laws will continue to be in force and the local officials will be retained.

Even though the existing courts are permitted to function, there will nevertheless be established military tribunals. It is likely that initially the local courts will be deprived of jurisdiction, but that they will later be permitted to exercise jurisdiction over the inhabitants. During the interim offenders will be brought before military courts. The military government will customarily establish commissions and provost courts having jurisdiction over all inhabitants in the area (but not over prisoners of war). The military courts continue in operation even after the civil courts have been reestablished and have the right to suspend proceedings in the local courts in any case and direct that the case be tried by a military court.

## Martial Law

By definition, martial law is temporary government through the military forces in domestic territory. Yet, as has already been indicated, the term military government has been extended to include government in technically neutral or allied territory which is actually unfriendly, and genuinely allied territory, the occupation of which is essential to a military operation. Actually, of course, it makes little difference whether the form of government is called military government or martial law, for the power of the military authorities in both is not substantially different. The civil and criminal laws continue in effect except insofar as their enforcement may be suspended by the inability of civil authorities to enforce them or by the President or by his military commander as a matter of military necessity.

Authority for the establishment of martial law is not found in any express provisions of the Constitution or Federal Statutes. Rather, it has been judicially recognized as being derived by necessary implication from various provisions

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of the Constitution. It may properly exist when a condition prevails amounting to a state of war against a civil or foreign enemy as a result of which the machinery of civil government has broken down. Martial law differs from the situation in which federal troops are employed in aid of civil authorities (*e.g.* floods, strikes) only in the degree of military control. Under martial law the control is more extensive and generally of longer duration.

### Military Law

The third situation in which military jurisdiction is exercised is within the Army itself, that is the administration of military law.

## SOURCES OF MILITARY LAW

**General.** Historically, our military law goes back a considerable time before our country was founded. Long before Richard I of England wrote his ordinance of 1190 A.D. to "prevent disputes between the soldiers and sailors, in their voyage to the Holy Land", the Greeks and Romans had ordained laws for the punishment of military offenses such as desertion, mutiny, cowardice, disobeying or doing violence to a superior officer, and similar crimes against the military establishment. The Second Continental Congress in 1775 enacted Articles of War to govern the army prior to the adoption of the Constitution of the United States of America in 1787. Those articles had been borrowed from the Massachusetts Articles of War, which had in turn, been copied to a great extent from earlier English articles known as the Army Mutiny Act and Articles of War. The Articles of War now in force are revisions and modifications of former military laws couched in modern language.

**International Law.** The basic sources of military law are International Law and the Constitution. International Law is that body of rules and customs, either written as in treaties and agreements between countries, or unwritten as in practices which have developed over a period of years as the result of intercourse between nations. International Law states that "war is waged against the state as a belligerent only, and not against the individual citizens or subjects. Except where unavoidable, in the course of legitimate operations, private individuals and non-combatants are not to be involved in injury to life, person, or property." Continuing further, "Each belligerent shall duly punish all persons who may be guilty of violations of the laws of war." Company officers should normally have little occasion to rely on international law but will be concerned with the sources of law as derived from the Constitution.

**Constitutional Authority.** *General.* Article I, Section 8, of the Constitution of the United States provides that "the Congress shall have power . . . to declare war . . . and make rules concerning captures on land and water; to raise and support armies . . . to provide and maintain a navy; to make rules for the government and regulation of the land and naval force; . . . to make all laws which shall be necessary and proper for carrying into execution the foregoing powers, and all other powers vested by this Constitution in the government of the United States, or in any other department or officer thereof."

Article II, Section 2, provides that "the President shall be commander-in-chief of the army and navy of the United States, and of the militia of the several states, when called into the actual service of the United States."

*Articles of War.* Under the broad grant of constitutional power there are numerous subsidiary sources of military law. The most important are the Articles of War. The Articles of War are statutes enacted by Congress pursuant to its constitutional authority. At all times and in all places, these articles govern the armies of the United States. They form the basis of the substantive law (offenses, with punishments and penalties prescribed therefor) and procedural law (evidence, charges, and procedure) of our military service. So important are they that the 110th Article of War prescribes that certain articles be read to enlisted members of all commands within six days after entry into the army and every six months thereafter in order that all enlisted men may understand the scope and power of these rules.

*Army Regulations.* Second in importance perhaps are Army Regulations which consist of a series of administrative rules prescribed by the War Department

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under the general constitutional authority vested in the President as Commander-in-Chief of the Army to make and publish "needful and proper regulations for the government of the Army." They have the full force and effect of law within the Army.

*Opinions of the Judge Advocate General.* The Judge Advocate General is the legal adviser of the Secretary of War, the Chief of Staff, and the entire military establishment. He is the head of the system of military justice, and in his office are reviewed the records of trial of general courts-martial, courts of inquiry, and military commissions. When approved by the Secretary of War, the opinions of the Judge Advocate General, in the absence of contrary statutory or constitutional authority, are binding on the Army. These opinions are collected and published periodically. The Digest of 1912 contains all opinions published before 1912. The Digest of 1912-1940 contains opinions for the years indicated. Since 1941, the opinions are published in monthly bulletins.

*Decisions of Federal Courts.* Decisions rendered by these courts are precedents for future cases of like nature.

*Manual for Courts-Martial.* The Manual for Courts-Martial, U. S. Army 1928, is an important source of military law. Its predecessor, the manual published in 1921, is also binding except where it has been specifically superseded by the 1928 edition. The present manual embodies the Articles of War, explains their application, and prescribes the procedure for the administration of military justice.

*Customs of the Service.* Usage is an important guide, especially in aiding military courts to determine whether certain acts constitute violations of the military code of good order and military discipline. A usage or custom of the service to be recognized in a military court must have prevailed for a long period, must be well defined, equitable, and uniform in its application. It must not be contrary to written law and must pertain to a subject not provided for by written law.

## Persons Subject to Military Law

Frequent reference is made in the Articles of War to "persons subject to military law." A perfunctory reading of the Articles seems almost to indicate that the term is synonymous with "persons triable by courts-martial." This is not true, however, for "persons triable by courts-martial" includes not only persons subject to military law but also persons who violate the laws of war, for example spies (Article of War 82) and civilians in occupied enemy territory.

Article of War 2 is entitled "Persons Subject to Military Law," and it specifically enumerates the following classes:

1. All military personnel from the date of entrance into military Service;
2. Cadets at the United States Military Academy;
3. Marines detached for service with the Army by order of the President;
4. Persons serving sentence by courts-martial (notwithstanding the fact that they have been dishonorably discharged from the Army);
5. Civilians who in time of peace are accompanying or serving with the Army outside the territorial jurisdiction of the United States or who in time of war are accompanying or serving with the Army in the field. The Army in the field has been interpreted by the Judge Advocate General to include the theater of operations, ports of embarkation, and temporary cantonments where troops are being trained for immediate dispatch to the theater of operations.

## Termination of Military Jurisdiction

In the case of military government, military jurisdiction will be continued in accordance with the policies of government of the occupying forces. It is not customary that exercise of jurisdiction will be terminated at the cessation of hostilities. Martial law on the other hand ceases when the necessity which required its inception no longer exists.

Generally, persons subject to military law are relieved from amenability to military jurisdiction upon discharge. In effect, then, the military authorities lose the power to try and punish persons who have committed offenses while in the military service when these persons are discharged, and reenlistment does not reestablish jurisdiction to punish for offenses committed in previous enlistments. An

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honorable discharge and a discharge without honor terminate jurisdiction for offenses committed during the enlistment for which the discharge was given. A dishonorable discharge terminates jurisdiction for offenses committed in any enlistment prior to the discharge. Thus, if a soldier deserted the Army, subsequently fraudulently enlisted, and then still later was dishonorably discharged from his fraudulent enlistment, he could not be tried by the Army for desertion. Had he received an honorable discharge instead, the discharge would terminate jurisdiction only for offenses committed during the enlistment for which the discharge was given and thus would not affect the right of a military court to punish the soldier later for the desertion.

A discharge obtained by fraud does not terminate jurisdiction, for the discharge may be cancelled and the soldier guilty of the fraud returned to military control. Nor does a discharge which does not interrupt a soldier's status as a person subject to military law affect military jurisdiction. For example, should an enlisted man commit an offense for which he is not tried and then graduate from officer candidate school, he would get a discharge. Nevertheless, he could be tried even as an officer for the offense committed as an enlisted man, notwithstanding the intervening discharge, because the discharge did not interrupt his status as a soldier, that is, as a person subject to military law.

Jurisdiction over persons serving sentences by courts-martial is retained in Article of War 2. Article of War 94 entitled "Frauds Against the Government" provides that a discharged person who violated Article 94 prior to his discharge shall "continue to be liable to be arrested and held for a trial by a court-martial in the same manner and to the same extent" as if he had not been discharged.

## JURISDICTION—EXCLUSIVE AND CONCURRENT

Entry into the military service does not exempt a person from the jurisdiction of civilian courts. In fact in many instances when a soldier commits an offense he renders himself liable to trial by both civil and military courts. Jurisdiction may be described as either exclusive or concurrent. It is exclusive when only one authority may punish the offender for his violation. Concurrent jurisdiction exists when several authorities have this right.

Exclusive jurisdiction is vested in military authorities when the nature of the offense committed is purely military. No state or federal civil court, for instance, has the power to punish a soldier for wrongfully appearing in civilian clothes. Desertion, absence without leave, insubordination, and sleeping while on guard are other purely military offenses.

But a soldier who goes into a town near his camp and murders an individual violates not only military law (Article of War 92) but also the law of the state where the murder occurred. For this violation the state may try the soldier; or the military authorities may try him; or both may try him. This is concurrent jurisdiction, that is, the state and the military authorities share the right to punish.

Concurrent jurisdiction exists even on military reservations. The federal government cannot go into a state, purchase large tracts of land for military reservations and then say to the state, "Your laws are no longer in effect here; you have lost all your rights over this land." In most states, however, jurisdiction on military reservations is exclusively federal—with consent of the state. The Constitution of the United States provides that Congress may purchase land for military and naval reservations and further, that if the purchase is made with consent of the state, then the federal government acquires exclusive jurisdiction. Military personnel committing offenses on such reservations are of course punishable by military authorities; civilians not subject to military law may be tried by federal civil courts.

The prohibition in the 5th Amendment to the Constitution against double jeopardy indicates that a person may not be twice tried for a single offense. This constitutional prohibition may seem incongruous with the assertion earlier in this chapter that a soldier who committed murder could be tried by both state and military authorities. The effect of the 5th Amendment is this: Amendment 5 is a limitation on the power of the federal government and states in effect that a man may not be tried twice by the federal government. There is nothing to prevent his being tried twice if one trial is by a federal tribunal and the other by a state

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court. While courts-martial are not part of the federal judicial system, a trial by court-martial is a trial by a federal tribunal and will effectively bar subsequent trial by any other federal court.

## CLASSIFICATION OF COURTS-MARTIAL

### Introduction

Military courts are not classified as courts of first instance or appellate courts, for in fact there is no such thing in army courts-martial as taking an appeal. Instead the military courts vary chiefly in membership requirements and punishing power. The courts are described in Article of War 3 as (a) General Courts-Martial, (b) Special Courts-Martial, and (c) Summary Courts-Martial.

All officers in the military service are eligible to serve on courts-martial. In a particular case before a general or special court, however, an officer might be disqualified from serving if he is the accuser or a witness for the prosecution, or in case of a rehearing, if he sat when the court first heard the case. The Manual for Courts-Martial directs that the appointing authority shall detail as members officers best qualified by reason of age, training, experience, and judicial temperament. It is the policy that at least half of the members shall have been on active duty for more than two years. Further it is desirable that no person be tried by a court any member of which is inferior in rank to the accused. To every general and special court-martial, in addition to the members, there will be detailed a trial judge advocate to prosecute and a defense counsel to defend. Further, the appointing authority will designate one member on each general court as law member. Courts are generally appointed to serve for an indefinite period but may also be appointed to try a specific case only.

### General Court-Martial

A General Court-Martial, which consists of five or more members, may be appointed by the President of the United States, by Commanding Officers of armies, corps, divisions, and by other commanding officers specifically designated by the President. The general court is the only court which can impose the death sentence or give a dishonorable discharge. It can try any person subject to military law and persons who violate the law of war and is the only court which can try officers.

### Special Court-Martial

A Special Court-Martial is composed of three or more officers. It can try all enlisted men and warrant officers and can impose confinement not to exceed six months and forfeiture not to exceed two-thirds pay per month for six months. Cases in which the death penalty is permissible but not mandatory, such as desertion, may be tried by special court only if referred to the special court by the general court-martial appointing authority. The special court as well as the summary court is appointed by the commanding officer of posts, camps, stations, detached commands, regiments, separate battalions, and higher commands.

### Summary Court-Martial

A Summary Court-Martial is authorized to try privates and privates first class. It is also authorized to try noncommissioned officers below the grade of technical sergeant if they consent or if their trial by summary court-martial is ordered by the general court-martial appointing authority. Only one officer comprises the summary court. He is authorized to impose confinement not to exceed one month and a forfeiture not to exceed two-thirds of one month's pay. Restriction or hard labor without confinement could be substituted for confinement. The court could, for example, impose both restriction and confinement if it apportioned these forms, for instance, fifteen days confinement (one-half the authorized confinement) and forty-five days restriction (one-half the authorized restriction).

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## DISCIPLINARY POWERS OF COMMANDING OFFICERS

### General

A casual perusal of the Articles of War quickly reveals that Congress has made provision for the punishment of many types of offenses. Some of the offenses are specifically set out in the articles. For illustration, arson is mentioned among the miscellaneous crimes punishable under Article of War 93. Murder and rape are covered by Article 92, while absence without leave in its various forms is the subject of Article 61. These are, of course, only a few of the offenses denounced by name in the articles. Many acts of conduct though not specifically set out as offenses are punishable by courts-martial under the provisions of the 96th Article of War. This article entitled "General Article" provides that, "all disorders and neglects to the prejudice of good order and military discipline, and all conduct of a nature to bring discredit upon the military service" shall be punishable by court-martial. Nowhere in the articles, for example, is it specifically stated that a soldier may not go off the reservation and become 'rip-roaring' drunk while not on duty, but certainly such conduct would bring discredit upon the military service and is thereby an offense.

Articles of War 54 through 96 are known as punitive articles. Some of these provide for mandatory punishments which must be meted out to an offender who is found guilty of their violation; some provide alternate punishment; and some, such as Article of War 85 entitled "Drunk on Duty," require the imposition of mandatory punishments, and in addition permit the court to impose such other punishment as it sees fit. Except in the case of a few very serious crimes, such as spying, murder, and rape, it is not always easy for a commanding officer to determine what disciplinary action he should take when a violation comes to his attention.

In some instances, of course, the best interests of the Army are well served by imposing no punishment at all. If a soldier whose record is of the best sleeps through his stop on the railroad and arrives at camp ten hours late, a warning from the company commander will almost certainly suffice. But beyond this obvious case there are many which cannot be allowed to remain unpunished, yet which do not justify the time and trouble which is required for a court-martial trial. Then, too, records of conviction by courts-martial become a part of the record of an enlisted man. They are recorded in his service record and follow him inevitably until he is finally discharged from the Army. Article of War 104 was provided to allow for the punishment of minor offenses by commanding officers without resort to trial by court-martial. This permits prompt enforcement of discipline without formality and the expenditure of time involved in a court-martial proceeding; and, perhaps most important, provides a deterrent without a permanent mark against the record of the soldier.

The 104th Article of War is known to enlisted men and officers alike as the company punishment article. This is a misnomer for in fact the scope of the article is much broader. The proper title is "Disciplinary Powers of Commanding Officers"; and the authorized punishments may be imposed by any officer in the direct chain of command. In the words of the article, ". . . the commanding officer of any detachment, company, or higher command may, for minor offenses, impose disciplinary punishments upon persons of his command without the intervention of a court-martial, unless the accused demands trial by court-martial."

Many commanding officers are not fully aware of the implications of the words "minor offenses." Punishment imposed for other than a minor offense is beyond the scope of authority of the officer who imposes it, and will not operate to prevent trial by court-martial even after the accused has undergone the punishment imposed.

Some offenses are obviously not minor. It is impossible to conceive of punishment under AW 104 for such serious crimes as murder, arson, and rape; but the dividing line between these very serious crimes and others somewhat less serious is not easily drawn. Absence without leave, for instance, is a minor offense under certain conditions and most serious under others. In two cases of absence without leave of precisely the same duration, one might properly be a minor offense and the other might be of the gravest nature depending on the attendant circumstances.

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In making his determination of the gravity of an offense, the officer must be guided by certain definite principles. Where the Articles of War prescribe a mandatory punishment or authorize confinement in a penitentiary or the imposition of the death sentence, the offense is too grave to permit the imposition of punishment under AW 104. The Manual for Courts-Martial states that in general ". . . the term includes derelictions not involving moral turpitude or any greater degree of criminality or seriousness than is involved in the average offense tried by summary court-martial."

"Moral turpitude" is a phrase of ambiguous meaning. There are some offenses which definitely do not involve moral turpitude and others which most certainly do, but the line of demarcation between the two classes is not clearly defined. In general, however, moral turpitude involves certain antisocial tendencies; the crime characterized by those words is one which is inimicable to decent living or one which is so serious in its implications that the Army cannot permit it to be condoned or dealt with in any manner other than by a court-martial.

One last consideration. In determining whether or not the offense is minor, the circumstances surrounding the offense, the time and place where it was committed, and the offender himself must be taken into consideration. To say that it is a minor offense to be absent without leave for two days may be true in many cases, but it is obviously not true if the man has been absent without leave for the same period of time on five previous occasions, and has been tried by court-martial for the last one.

## Procedure for Punishment

Once the commanding officer has decided that punishment under AW 104 is proper and desirable, it is incumbent upon him to advise the accused of his right to demand trial by court-martial. Once the accused has made his election he is bound by it; that is to say, he cannot demand trial by a court-martial once he has chosen punishment under the 104th Article of War even though he believes that the punishment imposed upon him is too severe.

When the commanding officer learns that a minor offense has been committed, he should allow the accused to explain the offense and offer any facts that are available in mitigation or extenuation. The accused should first be advised of his right to remain silent and that any statement he may make can be used against him in the event of a court-martial. If the accused elects to explain, it may be that he will justify the offense to the satisfaction of his commanding officer or establish his innocence beyond question. If the company or other commander is not satisfied, he must decide, if the offense is a minor one, whether or not punishment under Article of War 104 is adequate, or whether charges should be preferred and the case referred for trial by a court-martial. Only when he has decided that punishment under AW 104 is adequate should the accused be told of his right to choose between trial by court-martial and punishment under AW 104.

When the accused has chosen punishment under AW 104, then and only then, should he be told what punishment he will undergo. He should then be informed of his right to appeal the punishment imposed to the next superior authority, but he can be required to undergo the punishment while the appeal is pending.

The appeal should be in writing and should be made through proper channels within a reasonable time. The officer who imposed punishment should advise the soldier that he should state briefly in his letter of appeal the reasons why he regards the punishment imposed as too severe or disproportionate to the offense. The next higher authority will refer to the record of the case, which the commanding officer should include with the appeal. The authority to whom the appeal has been made may approve the punishment, reduce it, or disapprove it entirely, but he may not change its form. He will indorse his decision on the letter of appeal and return the correspondence to the officer who imposed the punishment.

## Permissible Punishments

The punishments which may be imposed under Article of War 104 are set out specifically in the article. They include admonition, reprimand, withholding of privileges for not exceeding one week, extra fatigue for not exceeding one week, restriction to limits for not exceeding one week and hard labor without confinement for not exceeding one week.

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There is one more punishment which may be imposed under special circumstances only. In time of war or grave public emergency, a general officer may impose upon officers of his command, below the grade of major, forfeiture of not more than one half of one month's pay. Instances arise with monotonous regularity in which company commanders impose illegal forfeitures upon their men, believing that Article of War 104 sanctions such action. With the one exception mentioned, a soldier's pay may not be forfeited or detained in any manner by action of a commanding officer.

The admonition which may be imposed as a punishment differs from an administrative admonition in that it is imposed as a punishment. It is a warning delivered formally after the accused has elected punishment under AW 104 instead of trial by court-martial. A reprimand imposed as punishment is a rebuke imposed in exactly the same way.

The company commander should be very sure that the privileges that he withholds "for not exceeding one week" are rights which he has authority to withhold. Without deciding upon the desirability of such punishment, withholding of passes and furloughs is normally a valid exercise of authority under this article. This is a form of punishment which requires that a company commander possess a knowledge of the needs of the men of his command and exercise sound discretion with respect thereto. Withholding of a weekend pass, unless an emergency should arise requiring the presence of the enlisted man at his home, has a salutary effect upon enlisted men stationed near a city, but little effect upon members of a command located many miles from civilization.

Extra fatigue will often be the most effective form of punishment. Generally speaking, extra fatigue envisions work which is usually performed by privates and privates first class in addition to their normal military duties. The police of the company area, collection of garbage, and extra KP are valid forms of punishment for enlisted men of the sixth and seven grades. Punishments which tend to degrade the rank of noncommissioned officers should not be imposed.

Hard labor without confinement is labor which is performed for labor's sake—labor which is beyond the scope of the usual fatigue details. The form which this may take is limited only by the ingenuity of the officer imposing punishment, but should never be cruel or unreasonable To dig a hole and refill it may, in a few cases, be a sensible punishment; to require hard labor which will improve the appearance of the company area is much more so. Punishments which bring discredit upon a military duty—such as performing an extra tour of guard duty or marching post with a full pack—are never permissible

Restriction to limits for a period not to exceed seven days may often be desirable. The officer imposing punishment should be very careful to set up the limits of the restriction and be sure that they are understood.

No punishment imposed under AW 104 may exceed seven days; and seven days means seven consecutive days, not seven Sundays. Two forms of punishment may not be in force at the same time. If the commanding officer desires to impose both hard labor without confinement and restriction to limits he must apportion them. For instance, he could have one form of punishment in effect for four days and another for three.

### Punishment of Officers

The only mention that has been made of officers, so far, applied to the power of a general officer to impose forfeiture upon company grade officers in certain cases. This is an additional form of punishment, not an exclusive one. It will be noted that the article allows the imposition of punishment by commanding officers upon "persons" of their command. Officers, then, are subject to punishment under this article.

The procedure for the imposition of punishment upon officers is the same as that for enlisted men with one exception—all the preliminary steps and the imposition of the punishment should be in writing. The completed correspondence will become a part of the officer's 201 file. The officer has the same right to choose trial by court-martial and the same right to appeal. The same punishments may be imposed. Of course, an officer and a noncommissioned officer may not be compelled to undergo punishment which degrades or tends to degrade their rank. But there is nothing degrading about restriction to limits, unpleasant as it may be.

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The Manual provides arbitrarily that "Hard labor will not be imposed or enforced as a punishment against any person of actual, relative, or assimilated rank above that of a private first class in the Army . . ." And again, although it does not degrade his rank, an officer may not be ordered to perform the duties of officer of the day oftener than is justified by the roster because this is a military duty and should not be imposed as a punishment.

### Records of Punishment

Every company or detachment commander must keep a record of all punishment which is imposed upon members of his command under Article of War 104. This is usually called the Company Punishment Book, and, unless local rules are more exacting, may be kept in any form which contains all the information necessary. A page should be used for each man upon whom punishment has been imposed; and it is not necessary to make out a page for an individual until disciplinary action is taken. The record should show the offense, the date and place of commission, punishment and the authority that imposed it, the date the accused received notice of imposition of the punishment, decision of higher authority on appeal, and any mitigation or remission of the punishment.

In addition, the commanding officer will do well to include any additional information which influenced his decision and any facts which rendered the case an unusual one. It is wise to require that the accused sign or initial his decision to accept punishment under AW 104 and his decision to appeal or not to appeal the punishment imposed. When the enlisted man is transferred, the record remains behind and will not be transferred to his new organization.

### Effect of Irregularity

The authority to impose punishment under this article may never be delegated. Perhaps no other provision of the 104th Article of War is more frequently abused than this. It is, after all, a command function and must be exercised by the commanding officer, never by a company officer or the first sergeant. The Manual provides that punishment imposed under AW 104 will not be invalidated by a failure to comply in every particular with the regulations prescribed in Chapter 24, ". . . except to the extent that may be required by a clear and affirmative showing of injury to a substantial right of the person on whom the punishment was imposed, which right was neither expressly or impliedly waived." There must always be a substantial compliance, at least. A recent opinion of the Judge Advocate General states that "Failure of the officer imposing the punishment to notify the accused of his rights, nullifies the order of punishment and renders it illegal." But there is no question of the illegality of punishment imposed by anyone other than a commanding officer.

Article of War 104 affords an opportunity for the company commander to demonstrate leadership and administrative ability. Properly administered, this article will maintain the discipline and morale of the command and save the Government time and expense. A low court-martial rate is not necessarily indicative of leadership ability, but a high one certainly reveals the opposite.

Regardless of the care with which punishment is imposed, however, the results will be entirely unsatisfactory unless the commanding officer, particularly the company commander, goes one step further. Once the punishment has been decided upon, prompt and exact compliance must be required. After pointing out that punishments must be enforced strictly, the Manual states: "Any failure in this respect has, if anything, a worse effect on discipline than an unwarranted condonation of the offense for which the punishment was imposed."

### Punishment As Bar To Trial

Punishment imposed under the 104th Article of War in a proper case is an effective bar against trial by court-martial for the same offense. That is, a soldier can plead in bar of trial by court-martial the fact that he was punished for the same offense under AW 104 and that the offense was a minor offense properly punishable under that Article.

For example, since larceny of an automobile is not a minor offense, the fact that the accused has been punished by his company commander is material only in the

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MAJOR UNIT THE ORDNANCE SCHOOL

COMPANY 39th Ord Co REGIMENT
Aberdeen Proving Ground, Maryland
COMPANY PUNISHMENT RECORD

NAME DOE, JOHN M. GRADE Private A.S.N. 33 064 758

| DATE ACTION TAKEN AND EM INFORMED | OFFENSE, DATE AND PLACE | COURTS-MARTIAL DEMANDED (YES OR NO) (EM'S INITIALS) | PUNISHMENT, INCLUSIVE DATES AND SIGNATURE OF OFFICER IMPOSING PUNISHMENT | APPEAL (YES OR NO) (EM'S INITIALS) | REMISSION, MITIGATION, OR OTHER REMARKS |
|---|---|---|---|---|---|
| 15 Jun 44 | Drunk in uniform, Aberdeen, Md., 14 Jun 44. | No J.M.D. | Restricted to Aberdeen Proving Ground from 15 Jun 44 to 21 Jun 44. *Paul A. Saunders* 1st Lt, Ord Dept, Comdg. | Yes J.M.D. | Restriction from 19 Jun 44 to 21 Jun 44 remitted on appeal. 17 Jun 44. |
| 2 Jul 44 | AWOL from organization at A.P.G., Md., from 2200, 30 Jun 44, to 1000, 1 Jul 44. | No J.M.D. | Extra fatigue from 2 Jul 44 to 8 Jul 44. *Paul A. Saunders* 1st Lt, Ord Dept, Comdg. | No J.M.D. | |

APG FORM NO. 498-44

**Figure 1. Record of Punishment Under Article of War 104.**

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determination of the proper punishment to be imposed. The act of the company commander was improper and without legal effect.

One act may give rise, on occasion, to two or more different offenses. A sentinel who fires his weapon at a bottle without authority has committed a minor offense properly punishable under AW 104. If the bullet wounded a soldier some distance away, another and more serious offense has been committed. It is obvious that punishment properly imposed under AW 104 for the unauthorized discharge of a firearm will not bar trial by court-martial for the second offense—the negligent shooting of the soldier—which grew out of the same act.

### Discretion of Commanding Officer

In any event then it is incumbent upon the company commander to analyze the situation thoroughly before he decides what action he will take. He should remember that there are many considerations which he must make, but that the end result must be the good of the Army as a whole and of his command in particular. He has at his discretion authority to dispose of the vast majority of infractions of military law without resort to courts-martial. But he must avoid the natural tendency to classify offenses by types and lay down blanket rules for the punishment of each. Each offense is made unique by the personality of the person who commits it, and many offenses require punishments tailored to fit the needs of the individual and the offense. It requires ability and study, but the results are more than worth while.

In conclusion, it is necessary to remark that Article of War 104 is disciplinary in nature, that is, it provides for punishments and not for administrative correction. An officer may reprimand a private whose performance of drill leaves much to be desired and he may warn him against a repetition of the offense, but this is administrative action and not to be confused with punishment under AW 104. This is best stated in paragraph 105, "A Manual for Courts-Martial, 1928":

"A.W. 104 and the provisions of this chapter do not apply to, include, or limit the use of those nonpunitive measures that a commanding officer is authorized and expected to use in order to further the efficiency of his command, such as administrative admonitions, reprimand, exhortations, disapprovals, criticisms, reproofs, rebukes, etc., written or oral, not intended or imposed as a punishment for a military offense. The fact that admonition and reprimand are termed disciplinary punishments by A.W. 104 does not deprive a commanding officer of the power he had prior to the enactment of that article to make use of admonition and reprimand, not as a penalty but as a purely corrective measure, more analogous to instruction than to punishment, in the strict line of his duty to create and maintain efficiency"

## RESTRAINT

### Types of Restraint

A person sentenced by court-martial to confinement will naturally be restrained in the local stockade or "at such place as the reviewing authority may direct." But what about a person before his trial? What about a person awaiting trial or a person restricted under Article of War 104? What is the nature of his restraint?

The Manual for Courts-Martial recognizes three forms of restraint which may be described as follows:

*Arrest.* A moral restraint imposed at any time after knowledge of an alleged offense and until final action on the charges;

*Restriction.* A moral restraint imposed as punishment by a court-martial or by a commanding officer under Article of War 104; and

*Confinement.* A physical restraint imposed pending investigation and trial for a serious offense or as punishment when imposed by court-martial.

A new type of restraint called administrative restriction was recognized by the Judge Advocate General in November 1943 (Vol. II, No. 11, Bulletin of the JAG). Like restriction, it is a moral restraint; but, unlike restriction, it is not imposed as punishment but rather to detain a soldier pending an investigation and trial. This type of restraint most nearly resembles arrest and was devised because arrest, being a status, is inconsistent with duty. When administrative restriction

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is imposed, the accused continues to perform his regular duties, and when off duty he is restrained within the limits of the restriction.

Moral restraint can be distinguished from physical restraint by the manner in which each is enforced. A soldier morally restrained is honor bound, that is, he is morally obligated to respect the limits of the restraint. There are no guards, no barred windows, no high fences. The soldier can simply walk out, and it is likely that no one will stop him. Should he fail to justify the confidence which resulted in this form of restraint rather than physical restraint, then it is likely that charges will be preferred against him alleging breach of arrest under Article of War 68, or breach of restriction under Article of War 96.

A soldier in confinement, on the other hand, can not leave quite so easily. When there is physical restraint there is some physical force or barrier to prevent ingress to and egress from the area of restraint. A soldier in the stockade who attempts to leave might find that he is confronted with a high wall or fence and an armed guard; he is then physically restrained.

### Who May Restrain

Little confusion exists concerning who may confine or restrict. The manual clearly vests in all officers the power to confine enlisted men. Further, commanding officers may delegate to noncommissioned officers of the company power to confine other enlisted men in the organization at the instant when restraint is necessary. Confinement as punishment may also be imposed by all courts-martial.

Restriction as punishment is valid when ordered by a court-martial or by a commanding officer under Article of War 104. No determination of the limitations on the authority to impose administrative restriction has been published by the Judge Advocate General; but since it so closely resembles arrest in purpose and nature, it seems reasonable to assume that similar rules apply to its use.

While the power to arrest and the occasion for it seem well defined in the manual, other military publications using the word arrest do not appear at first glance to coincide. The authority to arrest is contained in Articles of War 68 and 69 and the Manual for Courts-Martial, page 14. A clear understanding of all the ramifications inherent in the word "arrest" necessitates elaboration on the definitions and the distinction between military and civil arrest.

### Civil and Military Arrests

In civil courts the word "arrest" is defined as the taking of a person into custody, under real or assumed authority, for the purpose of holding or detaining him to answer a criminal charge or civil demand. Simply depriving a person of his liberty by legal authority constitutes an arrest. For the purpose of determining the validity of arrests, civil courts have divided arrests into arrest by warrant and arrest without warrant.

An arrest by warrant is justified by an apparently valid writ authorizing the arrest.

An arrest without a warrant, however, may require inquiry as to the general authority of the person making the arrest in order to determine its validity. A police officer may arrest without a warrant any person:

a. Committing or about to commit a felony in the officer's presence;

b. Committing or threatening to commit in the officer's presence a misdemeanor amounting to a breach of the peace (modified in most states to include all misdemeanors);

c. On suspicion that the person committed a felony where there is reasonable ground to believe that a felony has been committed and that the person arrested is guilty of such felony.

A felony is defined as any offense which was at common law deemed a felony or which has been by statute declared to be a felony. Common law felonies include serious offenses such as murder, rape, larceny, arson, etc. In most states and in the Federal Code, every offense punishable by death or by imprisonment in the state prison or penitentiary is deemed a felony.

A misdemeanor is a criminal offense of any sort not in law amounting to the grade of felony.

The word "arrest" appears frequently in military publications. While there

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is no judicial determination of the matter, it appears that there must be made a fine distinction between a civil arrest and a military arrest. Military publications are indiscriminate in the use of the word. For instance, page 11 of FM 29-5 says that "military policemen may arrest *any person subject to military law . . . .*" Yet it will be stated later that only commanding *officers* may arrest officers. It becomes incumbent then to attempt to arrive at a definition of a military arrest in order to distinguish it from a civil arrest.

The words "arrest" and "in arrest" used in the military sense denote restraint imposed by a person to whom authority is specifically granted.

The Manual limits the power to arrest the following persons:

1. Enlisted men may be arrested (ordered into or placed in arrest) by:

a. All officers, in person, through other persons subject to military law, or by oral or writen communications.

b. Noncommissioned officers to whom authority has been delegated. The commanding officer of a detachment or larger command may delegate to noncommissioned officers in the command authority to place in arrest other enlisted men in his command or temporarily within his jurisdiction at the instant that restraint is necessary.

2. Officers may be arrested, ordered into, or placed in arrest, by commanding officers only, in person, through other officers, or by oral or written communications.

The term "commanding officers" as used here refers to commanding officers of regiments or higher units, and the commanding officers of detached units. No delegation of the power to arrest officers is permissible.

The 68th Article of War is an extension of the law of a military arrest. This Article of War vests in all persons in the military service above the rank of private first class the right to order into arrest any person subject to military law engaging in a quarrel, fray, or disorder. Together the Manual and the 68th Article of War determine who may create the status of "in arrest."

It appears then that one of the requisites of a military arrest is that the person who imposed the arrest was one of the individuals designated by the Manual for Courts-Martial or the 68th Article of War. One of these individuals does not establish the status of "in arrest" by simply taking the accused into custody, however. It is necessary that there be an order. The order may be oral or written; its form is immaterial. All that is required is that the words be sufficient to apprise the accused of the restraint.

The limits of a military arrest are those set out in the 69th Article of War, *i.e.*, barracks, quarters, or tent, unless other limits are prescribed by the person imposing the arrest. There were formerly, and may still be, two types of arrest, close arrest and open arrest. The close arrest limited the accused to his barracks, quarters, or tent. The open arrest was simply an enlargement of this. Both types of arrest are still in force even though the distinction in name is apparently no longer made. Whenever the order of arrest does not specify the limits of the arrest, the accused may not assume that any but a close arrest was intended. The type of arrest imposed should be based on consideration of the nature of the offense, the conduct of the accused prior to the present offense, the health of the accused, the climate, the adequacy of facilities, etc.

Special consideration should be given military policemen and members of guard relative to their power to arrest. AR 600-355 states that all members of the military establishment have the right and duty of civilians to arrest and, specifically, that members of guard and military policemen may place persons not subject to military law in arrest. FM 29-5 provides that a "military policeman may arrest any person subject to military law who is guilty of a violation of the police regulations of the command or whose conduct is such that restraint is necessary." This may appear at first glance to extend the authority to arrest. This seems unequivocably to grant military policemen the authority to arrest all persons in the military service *including* officers. However, a later paragraph in the same manual states that "a member of the military police, whether or not on duty as such, has the authority to arrest possessed by a private person." Here then, is recognition by military publication of a civil arrest and, though not con-

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clusive, it is an indication that there exists in the Army a distinction between a civil and a military arrest.

Army Regulation 615-300, entitled "Enlisted Men, Absence Without Leave and Desertion," provides that all military personnel are authorized and directed to arrest absentees whatever may be the grade of the person making the arrest or the person arrested. Civilian personnel, including private citizens, may arrest, detain, and deliver an absentee when authorized by any commissioned officer of the Army. Article of War 106 gives to civilian officers, having authority under the laws of the United States or any state to arrest offenders, the power to arrest a deserter from the military service. Army Regulation 615-300 authorizing all persons subject to military law to arrest all absentees subject to military law regardless of rank is clearly inconsistent with the Manual which limits arrest of officers to commanding officers. When the distinction between a military and civilian arrest is made, however, the statements can be reconciled.

A difficult problem is posed by the breach of a civil arrest by an officer who was arrested by an enlisted man. Suppose, for instance, a private witnessed the commission of larceny by an officer and thereupon arrested the officer, that is, took him into custody. If the officer failed to respect the arrest and broke away, is he guilty of violating the 69th Article of War? More likely, his offense must be charged under the 96th Article of War. The proof required to sustain breach of arrest charged under Article of War 69 indicated in Chapter XXVI of the Manual indicates that the 69th Article of War contemplates a military arrest only. The arrest referred to in Article of War 69 is described as simply a 'moral' restraint imposed by orders fixing the limits. There would be no arrest in a military sense if there were a 'physical' restraint for then the status of the accused would be in confinement. The further requirement that the accused be 'duly' placed in arrest imports that the status must have been created by an individual vested by the provisions of page 14 of the Manual with power to make the arrest.

A private in a night club, for instance, who observes an officer creating a violent disturbance and acting in a very disorderly manner, would be perfectly justified by the laws of the state in which the offense occurred to arrest that officer; that is, to take the officer into custody. The private would be entitled to detain the officer and deliver him to military or civil authorities. Should the officer break away and resist the restraint he would be guilty of breach of arrest under the state law but not the breach of arrest contemplated by Article of War 69 entitled, "Arrest or Confinement." The officer could, however, be tried for a breach of restraint lawfully imposed by the private. The charges in such a case would be drafted under Article of War 96.

This leads one to define a military arrest as a moral restraint imposed by the order of a person duly authorized, a restraint imposed prior to investigation or trial of the accused person. A military arrest then contemplates a status—in arrest. A civil arrest contemplates an act.

### Occasion for Restraint

So far the discussion of restraint has emphasized the authority to impose the restraint and the persons authorized to order it. Of particular importance is an understanding of when restraint should be imposed. No consideration is required in this discussion of restraint imposed by courts-martial or by commanding officers under Article of War 104. Restraint imposed in that manner is imposed after knowledge and consideration of all the facts and circumstances. More difficult to determine is what limitations on a soldier's freedom will be imposed prior to trial or disposition of charges under Article of War 104. The Manual indicates that any person subject to military law charged with crime or with a serious offense under the Articles of War shall be placed in confinement or arrest. The Manual enjoins that confinement should not normally be employed where the offense charged is only minor. Most important of all is the statement that restraint pending trial is not mandatory.

Careful consideration should be given by a commanding officer not only to the nature of the offenses allegedly committed but also as to the character and reputation of the accused. If the commanding officer feels assured that the accused is reliable and will certainly be present for trial, then no restraint is

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needed. Should the commanding officer feel that the accused should be required to remain on the reservation or within the organization area, he might then impose arrest or administrative restriction provided that he is sufficiently confident that the accused will respond to a moral restraint and that a physical restraint is unnecessary. In almost all instances, persons charged with very serious offenses and persons who have demonstrated repeatedly in the past that moral restraint is inadequate should be confined. "The character and duration of the restraint imposed before and during trial pending final action on the case will be the minimum necessary under the circumstances." (MCM Par. 19.)

## CHARGES

### General

It is generally true that the number of soldiers in an organization who are tried by court-martial provides a reliable index to the leadership ability of the company commander. Even in the best administered organizations, however, trial by court-martial is the last resort in cases which are too serious for punishment under the 104th Article of War. Again, courts-martial are necessary for those few individuals who, by frequent repetition of even relatively unimportant offenses, show their contempt for army life and its responsibilities.

Charges, which are the formal written accusations against the offender, may be preferred against anyone subject to military law by anyone who is himself subject to military law. Article of War 2 sets forth those persons so subject, including by its terms all military personnel. Civilians are subject only when they are serving with the army outside the United States or, in time of war, when they are serving with the army in the field. Soldiers serving sentence imposed by court-martial have the right to prefer charges because they are themselves subject to military law.

It is most common, of course, for the company commander to prefer the charges. This is usually desirable, especially where the offense was committed outside a military reservation. In the event that another person subject to military law and charged with responsibility for taking action on the case, for instance, an officer on duty as officer of the day, was a witness to the offense, it is usually best that the charges be preferred by him.

All charges must be signed by the person who prefers them. In addition, no person may be tried on unsworn charges without his consent; so the person who prefers the charges generally must swear either that he has personal knowledge of the offense or that he has investigated and believes that the charges are in fact true to the best of his knowledge and belief. If the accused does not object, and only in this case, trial may be had upon unsworn charges. This will usually be the case only when the trial is for the benefit of the accused. For example, in the case of a justifiable homicide of an escaping prisoner it might be to the best interest of the guard who was responsible for the death to be cleared of the charge by a court-martial trial.

### Composition

The charges themselves are divided into two parts. The 'technical charge' is a simple recital of the Article of War which is alleged to have been violated. In the 'specification', the acts which constituted that violation are set forth in detail. In most cases, little difficulty will be encountered in drafting proper charges and specifications, but a careful study of the Manual for Courts-Martial, 1928, will prevent many needless mistakes.

The form upon which charges are preferred is known as the Charge Sheet (WD AGO Form No. 115). On the face of the form, which is prepared in triplicate, spaces are provided for entering the personal data pertaining to the accused. His name, serial number, organization, age, and pay are entered. Later, a court may take these factors into consideration in determining sentence if the man is convicted. For the same reason, allotments to dependents and for insurance, the prior service of the soldier, and information relating to arrest or confinement pending trial appear.

On the second page space is provided for the entry of all technical charges and

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specifications. Once the formal charges and specifications have been drafted, charges are signed by the accuser in the applicable space and are sworn to by him before an officer administering oaths. On the back of the form the trial judge advocate enters the date of service of charges upon the accused.

Before drafting charges of any kind it is well to consider the Manual for Courts-Martial, 1928, carefully. Paragraphs 27, 28, and 29 of the Manual provide general instructions on the preparation of charges. Reference should then be made to chapter 26 of the Manual which provides a detailed discussion of the more common offenses and lists the necessary elements of proof for each. Do not forget: You may be morally certain that a soldier in your command has committed the offense in question and you may have abundant evidence of certain of the elements of proof required; but if one single element of the offense cannot be established, a conviction is impossible. Do not forget, however, that a court is permitted to infer certain things from other evidence which is presented to it. For example, in a prosecution for desertion the intention never to return to the organization from which an accused absented himself without leave may be inferred from his conduct. Perhaps his every action was inconsistent with an intention to return, in which case at least a prima facie case exists.

After the accuser has familiarized himself with the offense itself, he should turn to appendix IV of the Manual and use the model specifications which are there provided. These model specifications have been prepared on the basis of previous trials. They set forth all the elements of an offense provided they are completed with care and attention to detail.

Your specification must be spelled out. Abbreviations are not permitted in charges and specifications. Also, keep in mind the fact that everything that is averred in the specification must be supported by proper evidence at the trial. Of course you know the accused's serial number, but it is not necessary, so do not include it—otherwise, the prosecution will have to prove that the number you gave is really that of the accused.

Never make what is essentially one transaction into a number of separate offenses. For instance, the soldier who is charged with desertion should not have charged against him absence from a formation which occurred while he was absent without leave.

In addition, a minor offense should never be joined with a major offense unless the lesser offense tends to explain the more important one. Thus it would normally be improper to join a specification for absence from reveille formation with one for wilful disobedience of an order or one for murder.

Where applicable, use the words of the model specifications, and never substitute others which you think are just as good. 'Drunk' has a definite meaning in military law that 'intoxicated' does not. If you decide to experiment with words of your own the trial judge advocate may find it impossible to convince the court or the reviewing authority that the words you used to describe the offense actually set forth a military crime at all. The law has developed over hundreds of years; though the words 'wilfully, maliciously, unlawfully and feloniously' in an arson specification may sound like dead wood to you, they have been included for a definite legal reason and you must include them in order to state the offense correctly.

Allege all matters of time and place accurately. The reason for stating these matters at all—unless the time or the place is an essential element of the offense—is to enable the accused to understand exactly what the offenses are, against which he must defend himself. The purposes of military justice are fully met, in most cases, by an averment of a date alone. In cases of absence without leave, the hour may or may not be material, but in most cases the time is not necessary.

Next, even though the time and place have been accurately stated, use the words 'about' or 'on or about' in order to allow some slight variance between the proof and the specification. Of course, the court and the trial judge advocate may make minor changes in the charges, and the court is not bound to acquit simply because the proof varies from the time alleged by a few minutes or hours, except in the rare case where proof of a different time or date renders

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the apparent offense no offense at all. Nevertheless, care on the part of the accuser makes any doubt about this unnecessary.

Although matter which tends to aggravate the seriousness of an offense may be added to the offense, this is usually not desirable. Each new averment in the specification is one more stumbling block for the trial judge advocate. Remember that he must establish beyond a reasonable doubt the truth of the matters that you assert in the specification.

Although Article of War 96, the so-called general article, provides for the punishment of ". . . all disorders and neglects to the prejudice of good order and military discipline, all conduct of a nature to bring discredit on the military service, and all crimes or offenses not capital . . .", it was intended to be used in those cases not specifically covered by some other Article of War. Where an applicable article applies, then, use it in preference to the 96th article.

### Additional Charges

It is always best to dispose of all charges against an accused in one trial. It is never permissible to wait until a number of charges accrue against a man before preferring charges, except in the rare case where it is necessary because of some defect in the chain of proof so as to be able to exhibit a continued course of conduct.

Should grounds for additional charges arise after the original charges have been preferred, they may be added at any time before the case goes to trial or until the court is sworn. The mere fact that these additional charges may be added waives none of the formal requirements for preferring them. In the case of a general court-martial, for instance, the additional charges must have been investigated prior to the time they are received by the court for trial. Except in the rare event that the accused consents to be tried on unsworn charges, the accuser must also swear to the additional charges before they come before the court. And, as must already be apparent, the inclusion of additional charges immediately or shortly before the court is sworn, is good grounds for postponing the trial or granting a continuance if the trial has already begun.

### Charges Based on Confession

Among the many Latin terms which have been incorporated into the law is corpus delicti'. In its simplest sense, this means nothing more than proof that the offense actually has been committed. In a prosecution for absence without leave, for instance, the corpus delicti would be established by showing simply that the accused had been seen in a neighboring town at a time when he did not have permission to be absent from his organization.

Confessions by an accused are not admissible before a court, as a rule, until some other proof has been offered to show that the crime has been committed; in other words, until the corpus delicti has been established. If the only evidence of the offense, then, is the uncorroborated confession of the offender, it is useless to prefer charges against him. This is not to say that the matter should be dropped. Conscientious investigation by the company commander or an investigating officer will usually bring to light sufficient additional evidence to support the charges and allow the introduction of the confession in evidence.

One word more. When an offense is committed for which charges are to be preferred, the company commander, if it is he who is to take the action, must act promptly. Article of War 70 points out that whenever ". . . any person subject to military law is placed in arrest or confinement immediate steps will be taken to try the person accused or to dismiss the charge and release him. Any person who is responsible for unnecessary delay in investigating or carrying the case to a final conclusion shall be punished as a court-martial may direct."

## THE DISCIPLINARY CHAIN

Once the charge sheet has been completed, it will be referred to the commanding officer of the accused. The commanding officer, who is the company commander in most cases, must decide whether the charges should be dropped, whether punishment under Article of War 104 is preferable, or whether the charges should be referred to the appointing authority of a summary court-martial.

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Even the most casual observer cannot fail to be impressed by the opportunity which the commanding officer possesses to drop charges or punish the offender under the 104th Article of War. This power is much more apparent than real. Acting with discretion, of course, the commanding officer should prevent minor offenses and those offenses which cannot be proved from reaching the courts. In practice, most higher headquarters have well defined procedures by which the company or other commander is bound. In some situations trial by court-martial for absence without leave will invariably be necessary, even when the absence is of comparatively short duration. Normally, short periods of absence without leave are properly handled under AW 104.

If the commanding officer decides that trial by court-martial is necessary, he forwards the charges and all accompanying papers to the summary court-martial appointing authority. Where apprehension of the accused has been made by the military police, statements of witnesses will probably have been obtained. When the company commander has preferred the charges without the intervention of the military police, he must make every effort to obtain statements of expected testimony from all witnesses, have them signed if at all possible, and forward them with the charges.

The summary court-martial appointing authority may drop the charges, just as the commanding officer might have done. The former may also properly punish the offender under AW 104 for a minor offense, since he is invariably a commanding officer of the accused. He may also return the charges to the immediate commander, recommending that the charges be dropped and the soldier punished under the 104th Article of War. And, of course, he may refer the charges to a summary court-martial for trial. Very often the summary court-martial appointing authority will regard the offense as too serious for a summary court-martial. When the accused has had one or more previous convictions by summary court, a special court-martial may be required.

The appointing authority of a special court-martial is usually the same as that for a summary court-martial. In reality, then, this dual authority must decide whether a summary or special court-martial is desirable, whether punishment under the 104th Article of War is the best course, whether to drop charges altogether, or whether the charges should go to the appointing authority of a general court-martial.

The general court-martial appointing authority may drop the charges, although such action would be unusual once the charges had proceeded that far. He has, of course, authority to administer punishment under AW 104. It is within his power to refer the charges back down the road up which they have come, directing that the appropriate authority have them tried by summary or special court-martial or that some subordinate commander impose punishment under 104th Article of War. And, finally, he may refer the charges to a general court-martial for trial.

## INVESTIGATION OF CHARGES

But before charges may be referred legally to a general court-martial for trial, there are two prerequisites. Article of War 70 states that ". . . No charge will be referred for trial until after a thorough and impartial investigation thereof shall have been made." However, in 1937 this article was changed to apply only to trials by general court-martial. An investigation may be made before a case is referred for trial to a summary or special court-martial, but this is not required.

The second condition precedent to trial by general court-martial is that the charges be sent to the staff judge advocate, and he will examine the case and determine the legal sufficiency of the charges. The reason for this requirement is self-evident. It is often possible to save the time and labor required to bring to trial charges which, for some legal reason, cannot be sustained in court. The staff judge advocate may recommend the inclusion of additional charges, that charges be changed to aver a different offense or that some or all of the charges be dropped.

The investigation which is a prerequisite to trial by general court-martial must be "thorough and impartial." The officer who is to conduct the investiga-

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tion is normally detailed by the appointing authority of the general court, but the appointing authority of any court may appoint an investigating officer to enable him to make proper disposition of charges which he has received. An investigation performed at the order of the appointing authority of an inferior court will satisfy the requirements of AW 70, unless a further investigation is desired by the general court-martial appointing authority or the report of investigation reveals a lack of thoroughness.

An officer to whom charges have been referred for investigation should familiarize himself with paragraph 35a in the Manual which describes the duties expected of him. It is important to study the provisions of chapter 26 of the Manual in order to understand the elements of the offense charged and the evidence needed to support it.

The investigating officer should arrange for a room in which to conduct the investigation and should schedule the appearance of those witnesses whose testimony is material. In the case of military witnesses, application made to the immediate commanding officer of the witness will usually suffice to insure his presence. The decision of the officer exercising summary court-martial jurisdiction as to the availability of any witness is final. It may be possible to secure the appearance of witnesses not subject to military law, but they cannot be compelled to appear at the investigation. In a case where the chief witnesses are civilians, the ingenuity of the investigating officer will suggest other means of securing their testimony.

At the investigation, and even before the investigation, if possible, the accused should be informed of the charges which have been placed against him, the names of the accuser and all witnesses known to the officer investigating the case. Full opportunity should be given the accused to request the appearance of witnesses in his own behalf, either in defense or mitigation and extenuation. The investigating officer should examine witnesses on behalf of the accused as well as the Government. And, of course, the accused must be warned at the beginning of the investigation that he has the right to remain silent or to make a statement, subject, however, to having it used against him at the trial. Last, the accused has the right to cross-examine witnesses against him, though he may well find it more satisfactory to put his questions through the investigating officer.

The accused has no right to counsel during the investigation. It is incumbent upon the officer conducting the investigation to guard the rights of the accused in order that the investigation may actually be "thorough and impartial." It would be manifestly unfair to accept the confession of the accused when he is ignorant of the fact that it might be featured against him at his trial. In addition, its validity might be challenged and the confession declared inadmissable at the trial if it appears that the rights of the accused were adversely affected by undue influence in some form.

Witnesses need not be sworn unless the investigating officer deems it desirable or the instructions accompanying the charges state that such procedure will be followed. It is generally preferable to swear the witness, reduce his testimony to writing and obtain his signature in acknowledgment.

The report of investigation need not be formal unless the probable disposition of the case is such that a formal report is required. In fact, according to the Manual for Courts-Martial, it is permissible depending on the circumstances or the instructions of the appointing authority to submit the report orally or by a brief memorandum indorsement. This, however, is not customary. Remember, the Manual for Courts-Martial was written at a time when no charge could be referred to any court for trial unless there had been a thorough and impartial investigation. Since the publication of the Manual, Article of War 70, which required an investigation, has been changed. An investigation is required now only before charges will be referred to a general court-martial for trial. Normally, a formal report will be submitted on a Pretrial Investigating Officer's Report (WD AGO Form No. 120). This would certainly be true where the investigating officer recommends that the case be referred to a court appointed by a higher authority than that responsible for his appointment as investigating officer. It would also be the normal procedure in the case of an investigation performed by order of the appointing authority of a general court-martial.



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Although there are many important preliminary questions which must be answered, the ultimate decision which the investigating officer must make concerns the type of court-martial to which the case should be referred for trial. His decision in this regard will depend primarily upon the nature of the offense and the degree of moral turpitude involved. The question will depend to a considerable extent upon the circumstances surrounding the offense, the previous record of the accused, and the policy of the Army in regard to the particular crime. For instance, two cases of absence without leave involving absences of approximately the same duration might involve vastly different degrees of culpability and require different punishments.

Further, the investigation should be conducted with a view to determining whether or not there is reason to believe that the accused is, or was at the time the offense was committed, deranged or abnormal. An affirmative finding by the investigating officer would certainly affect the ultimate disposition to be made of the case, and a statement of the opinion of the officer, together with all the circumstances upon which his belief is founded, should be included in the report. Where all the circumstances point to the insanity of the accused, the appointing authority may well refer the man to a medical board which will pass upon his mental condition.

It is hardly necessary to point out, in this regard, that insanity is a defense before a court-martial in a criminal prosecution. It is equally obvious that it is pointless to waste the time of a court-martial when the accused may not be called upon to answer for the offense because of insanity.

The investigating officer must also include a statement of the substance of the testimony taken on both sides, including any stipulated testimony. He must be very scrupulous to avoid imputing opinions or statements to the witnesses which were not, in fact, their own. Of course, the trial judge advocate to whom the case is referred for trial will almost certainly interview the witnesses again. Too often, however, further investigation by the trial judge advocate puts an entirely different complexion on the case from that which appeared in the report of investigation. It is an unpleasant responsibility to render a report of investigation recommending trial by general court-martial and then to be called to account when the trial results in proof of innocence which would have been obvious had the investigation been properly conducted. The investigating officer is not expected to make a final decision as to the guilt or innocence of the accused, but he should do his job so carefully as to eliminate all but a minimal chance of innocence.

When the investigation is discussed in detail, it seems more complicated than it is in fact. The investigating officer who prepares himself thoroughly in advance will be able to go about the investigation with the least expenditure of time and trouble. This will pay dividends because time is important. Just as charges must be preferred without delay, so the investigating officer must meet a deadline in submitting his report. In most commands the report of investigation must be completed and returned within three days, but the time allotted may be even less than this.

## PREPARATION FOR TRIAL

### Witnesses

In every trial, probably the most important source of information is the testimony obtained through witnesses. While documentary and real evidence help to determine the guilt or innocence of the accused, the testimonial evidence given by witnesses is essential to interpret the other evidence. Thus, since these witnesses are so necessary, it follows that some method to compel attendance had to be formulated. This power to enforce the appearance of witnesses is vested in the trial judge advocates of general and special courts-martial and in the summary court-martial. Article of War 22 entitled "Process to Obtain Witnesses" states, "Every trial judge advocate of a general or special court-martial and every summary court-martial shall have power to issue the like process to compel witnesses to appear and testify which courts of the United States, having criminal jurisdiction, may lawfully issue; but such process shall run to any part of the United States, its territories and possessions."

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It is incumbent upon the trial judge advocate and the defense counsel to determine who these witnesses shall be depending upon the facts and the elements of proof necessary successfully to prosecute or defend the case. A list of witnesses should be made up by both sides for each item of proof so that these witnesses can be procured in time. In most cases before courts-martial, the majority of witnesses will probably be military personnel, but from time to time, civilian witnesses are required.

**Military Witnesses.** Obtaining military witnesses is a fairly simple matter. Those who are stationed at the place where the court will sit are notified to attend by a message or telephone call. It is wise to make this notification through the organization commander so that necessary arrangements to release the witness from his duties are effected. The witness should also be told the time, place, and date of the trial and that his presence is demanded. If the witness is stationed at another post, the commanding officer of that post is requested to issue the necessary transportation orders for travel to the place of trial.

The trial judge advocate or the defense counsel should instruct the witness how to conduct himself before the court including such matters as proper uniform and the correct procedure for reporting to the president of the court and in withdrawing after completing his testimony. He should also be advised that his presence will be required until the case is completely terminated unless his further attendance is considered unnecessary, in which event he will be given permission to leave by the president of the court.

**Civilian Witnesses.** As in any other court having proper jurisdiction over the person and subject matter, civilian witnesses may be compelled to attend a court-martial and testify thereat concerning their knowledge of the case. However, a simple notice is not sufficient to secure such attendance. A form known as a Subpoena for Civilian Witnesses (WD AGO Form No. 117) is issued in duplicate by the trial judge advocate of a general or special court-martial or by the officer conducting a summary court-martial. The subpoena will indicate the time, place, and date of the trial and that the presence of the witness is required. If there is no doubt that the witness will appear and that he will accept service of the subpoena, the two copies may be mailed to the witness. The witness will signify his acceptance by signing one copy and returning it to the trial judge advocate of the summary court. If the civilian witness signifies that he does not intend to appear, refuses to appear, or declines to accept service of the subpoena, personal service of the process must be made. This service is usually made by a person subject to military law, but it is just as valid if made by a civilian otherwise legally capable of serving a subpoena. One copy is personally delivered to the witness and a sworn endorsement that personal service has been made is accomplished on the other copy by the person who served the subpoena. This signed copy is then returned to the trial judge advocate. If the civilian witness resides a considerable distance from the place of trial, the trial judge advocate will usually send the subpoena to the commanding officer of the post nearest the residence of the required witness. A person designated by the commanding officer will then make personal service. In the event the civilian witness still refuses to appear after he has been properly served and tendered the prescribed fees, the trial judge advocate may compel his appearance by bodily force if necessary by issuing a Warrant of Attachment (WD AGO Form No. 119). Before issuing the warrant the trial judge advocate will consult the court concerning the desirability of its issuance. Upon the service of the latter process, the witness may then come willingly or be arrested and brought to the trial. Inasmuch as he is being deprived of his liberty, the witness may have recourse to a writ of habeas corpus. Therefore, all the papers in the case should accompany a writ of attachment so that if the writ of habeas corpus is secured, it will be denied and the witness turned over to the military authorities and be compelled to attend and testify. Another alternative is furnished by Article of War 23 which gives the federal district courts the power to punish a person unwilling to appear and testify. This is done by having the military court certify the facts to the United States attorney, who will file an information in a federal court. The witness may then be punished by a fine of not more than $500, or imprisonment for not more than 6 months, or both, for failure or

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refusal to appear. However, this difficulty is not encountered very often, and in most cases an unwilling witness is persuaded to appear by a brief explanation of the punishments which may be imposed if he persists in this refusal.

Civilian witnesses, except employees of the Federal Government, are entitled to witness fees, subsistence allowances, and mileage allowances to and from the place of trial. This amounts to $1.50 per day for attendance, $3.00 per day for subsistence, plus a travel allowance of 5c per mile. Government employees may receive only this travel allowance and a per diem subsistance allowance. Military witnesses receive no compensation whatsoever unless their post is some distance from the court, in which event they might receive a transportation request and a per diem subsistence allowance. These fees and allowances are arranged for by the trial judge advocate and are usually paid by the local finance officer at the termination of the trial. In the case of a writ of attachment, these fees must be issued in advance as a prerequisite to the issuance of the writ.

### Interrogatories and Depositions

**Nature of Depositions.** The purpose of having witnesses appear in person is not only to obtain the testimony from the best possible source, but also to give the court an opportunity to observe the demeanor and conduct of the witness. The court may be able to determine more accurately the credibility of the witness and how much weight to attach to the testimony. Furthermore, the court may wish to exercise its right of examining witnesses and put them to other tests. Many witnesses who may not feel too much compunction in straying from the truth are deterred from doing so in the presence of the austerity and dignity of the court itself. However, sometimes it becomes necessary to secure the testimony and present it to the court without the witness actually being present and testifying under oath. This is accomplished by means of a signed, sworn statement known as a deposition.

A deposition contains questions and answers to which the absent witness might testify, if he were actually present at the trial. Naturally, it does not have the same effect as the oral testimony and is less desirable than personal appearance of the witness. A deposition may be taken before any civil or military officer who is authorized by law to administer oaths. Its use is limited by Article of War 25 which provides that, upon reasonable notice to the opposing side, a deposition may be read in evidence before a military board, court of inquiry, or court-martial, except in a case in which the death penalty may be imposed, and in such an event only the defense may initiate it. However, if the defense resorts to a deposition, the trial judge advocate may take advantage of it and may also submit questions to the witness. A deposition may be taken where the witness is outside of the state, territory, or district where the court is sitting, or if the witness is over 100 miles from the site of the trial, or if the witness is unable to be present at the trial because of age, infirmity, sickness, imprisonment, or other satisfactory reason. It may also be taken if a witness now present will not be present at the time of the trial; for example, should an officer with orders to go overseas expect to leave before a trial takes place, his testimony may be taken by deposition.

**Procedure in Obtaining Depositions.** Except in a capital case when only the defense may initiate a deposition, either side may request that testimony be taken by deposition. However, the trial judge advocate sends out all interrogatories, whether for the prosecution or for the defense. Depositions consist of interrogatories and cross-interrogatories, which may be oral or written. An interrogatory is a question which would be asked of a witness on direct examination and a cross-interrogatory is a question would be asked on cross-examination.

In the case of oral interrogatories, each side submits a memorandum of the general points to be covered. For example in a case where because of the distance involved, the trial judge advocate and the defense counsel are unable to examine the witness personally, as indicated above, both submit a list of the points to be covered, rather than specific questions. The commanding officer who receives these papers designates an officer to represent both sides in asking the questions and another officer to administer the oath. The questions submitted

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to the witness together with his answers are reduced to writing and signed by him. The deposition is then returned to the trial judge advocate, but it is equally available to both sides at the trial.

In the case of written interrogatories, however, the side which desires a deposition prepares a list of specific questions which it desires the absent witness to answer. These interrogatories are then submitted to the opposite side, which may, if it so desires, submit cross-interrogatories. Again each side may ask as many questions as it likes and the answers are equally available to either side at the trial. This latter procedure is the one most generally observed.

In the event the witness is some distance away and it is not feasible for the trial judge advocate and the defense counsel to examine the witness, the interrogatories are sent to the commanding officer of the nearest post, or to some other responsible person competent to administer oaths, such as a county clerk, district attorney, or an attorney-at-law with notarial powers. When the deposition is sent to a commanding officer, he appoints an officer to take the deposition. The officer so designated is thereby competent to administer oaths. The witness is then asked the questions which have been submitted, his answers are recorded, and the completed deposition is then sent to the trial judge advocate. The trial judge advocate, upon receipt of the deposition, notifies the defense counsel and gives him full opportunity to examine it before the trial. At the trial it is ordinarily read to the court by the side on whose behalf it was taken and incorporated in the record as an exhibit. The entire deposition must be read whether the testimony is favorable or unfavorable and if not used in its entirety it may not be used at all.

### Stipulations

With a view to saving time at the trial, the trial judge advocate and the defense counsel should join in appropriate stipulations as to unimportant or uncontested matters. A stipulation is simply an agreement between the parties as to the existence of certain facts or as to the testimony a witness might give were he present. It can be seen that much labor and expense is spared if the parties make a written or oral stipulation of the existence or nonexistence of a fact. The parties may stipulate that if a certain person were present in court as a witness, he would give certain testimony under oath. Such a stipulation does not admit the truth of such testimony, nor does it add anything to the weight of the testimony. A stipulation should not be confused with a deposition as the latter is a sworn statement signed by the person making the statement and is read into the record as any other testimony, whereas a stipulation is merely an agreement between the parties regarding some undisputed fact.

The parties should not enter into, and the court should not accept, a stipulation which practically amounts to a confession where the accused has pleaded not guilty or where a stipulation of a fact which if true would operate as a complete defense.

## DUTIES OF COURT PERSONNEL

### Members

#### Law Member

On every general court-martial, one of the court members will be designated by the appointing authority of the court as law member; otherwise, the court is without jurisdiction. It is directed by AW 8 that when possible the law member be an officer of the Judge Advocate General's Department, and when this is not feasible he be someone "specially qualified." The purpose of this requirement is to have on the court a member trained in the law to perform some of the important functions of the trial judge of jury trials in criminal courts. Only a general court will have a law member.

When present, the law member of the court rules on interlocutory questions (legal questions arising during the trial). His rulings on these matters are made subject to objection by any other member of the court. Upon such objection the court is cleared and closed and the question determined by a majority vote of the court. Further, he rules on questions of admissibility of evidence. In this case his ruling is final, and is not subject to objection by any member

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of the court. In addition to his special duties, the law member has the duties, powers, and privileges of other members.

### President of the Court

The president of a general or special court-martial is the senior officer present. Should the senior officer designated in the order appointing the court be absent the next ranking officer automatically becomes president. In the absence of the law member on a general court-martial, and in all cases before special courts-martial, the president rules on both interlocutory questions, as well as questions on the admissibility of evidence. His ruling is subject in all instances to objection by any member of the court. The president maintains order, gives the directions necessary for the regular and proper conduct of the proceedings, takes proper steps to expedite the trial of all charges referred for trial, and, unless otherwise provided, is the spokesman and representative of the court.

During the trial, the president will administer the oath to the trial judge advocate; he will open and close the court as the proceedings necessitate; he will advise the accused of his rights during trial; and he will excuse witnesses. He checks the vote of the court on all questions and authenticates by his signature all acts, orders, and proceedings of the court. In addition to his special duties, the president of the court performs the duties of a regular member.

### Other Members

All members of general and special courts-martial take oath that they will "truly try and determine, according to the evidence, the matter now before you, between the United States of America and the person to be tried." Each member has an equal voice and vote with other members in deliberating upon and deciding all questions submitted to a vote. Neither the president nor the law member has any greater rights in such matters than any other member. Members are required to be dignified and attentive. Although a court has no power to punish its members, improper conduct by a member, such as a refusal or failure to vote or properly to discharge any other duty under his oath, is a military offense. The junior member of the court, in addition to his regular duties as a member, distributes, collects, and counts the votes.

### Personnel Other Than Members

**General.** In general and special courts-martial, there are other officers who, although not members of the court, have duties in connection with the trial of cases. These are the trial judge advocate and the defense counsel, with such assistants as the officer appointing the court deems necessary.

**Trial Judge Advocate.** The trial judge advocate is the most active of all the court-martial personnel. Although his primary function is to conduct the prosecution, he has many administrative duties to perform both before and after each trial.

Unless excused by the appointing authority from so doing, the trial judge advocate will submit to him (through the president) a weekly report of the activities of the court. This report will include an explanation for delay in bringing to a completion any cases that have been on hand longer than two weeks.

When a charge sheet has been placed in the trial judge advocate's hands, his first step should be to familiarize himself with the Manual for Courts-Martial. Especially pertinent are paragraphs 41 and 42 and Appendix 5, which outline the duties of the trial judge advocate.

Second, he should read the charge sheet and the accompanying papers, and should carefully check the form of the specifications with that illustrated for the particular offense in Appendix 4 of the Manual. He should then refer to the appropriate paragraphs in Chapter XXVI of the Manual and see whether the statements of expected testimony accompanying the charge sheet satisfy the requisities of the Manual as to what must be proved. In general, there are four things the trial judge advocate must prove, no matter what offense is charged:

1. That the accused is within the jurisdiction of the court.
2. That the exact offense charged was actually committed.
3. That the accused committed it.
4. That he had the requisite criminal intent at the time.

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The amount of evidence that must be presented to support the last three of these elements may be lessened by a plea of guilty, but this does not relieve the trial judge advocate of the responsibility of being prepared to prove each element beyond a reasonable doubt.

Third, the trial judge advocate must serve a copy of the charges on the accused, and complete the certificate on the charge sheet, showing such service. At the same time, the defense counsel should be notified of these charges.

Fourth, the trial judge advocate must interview each witness named on the charge sheet and any others he is able to find. It is advisable at this time to formulate the exact questions to be asked later during the trial; these should be incorporated into his brief. The trial judge advocate should avoid any tendency during the interview to guide a witness into making statements favorable to his case. He should seek a true, complete picture of what really happened; if that picture reveals that the accused should not be prosecuted, the time and expense of a trial may be averted. It is the duty of the trial judge advocate to notify the appointing authority if at any time up to the rendering by the court of its findings he learns of some reason why the trial should not be held.

Fifth, he should prepare a trial brief. This is just a handy outline of the material to be presented to the court, step by step. Each offense with which the accused is charged is listed separately in the order in which it occurred. Under each offense are placed the elements that Chapter XXVI of the Manual requires to be proved. Then, under each element should be listed the names of the witnesses who will give testimony to support that element. If, for example, one of the offenses charged was larceny of a wrist watch, the outline might be made as follows:

I. Larceny of wrist watch (AW 93; Par. 149g MCM)
  A. Accused took and carried away a wrist watch.
    Pfc Thompson (saw accused take it).
  B. The watch belonged to another person.
    Sgt. Walsh (owner of watch).
  C. The watch is valued at about $40.00.
    Mr. Williams (jeweler).
  D. The accused's intent was fraudulently to deprive the owner of the watch permanently.
    Lt. Jackson (saw accused sell the watch).

The questions to be asked of each witness should be written out either directly after his name or on a separate sheet. Unless the trial judge advocate is very sure of himself he should not trust to memory the task of phrasing each question properly during the trial.

The trial judge advocate may desire to make an opening and closing statement. The opening statement is usually just a short summary of what he intends to prove and serves to emphasize or indicate the points which he wants the court to observe. The closing statement is a summary of what he has proved, and how this satisfies the requirements of proof set out by the Manual for Courts-Martial. If his brief is outlined properly, it can be used as a guide in making these statements.

Sixth, the trial judge advocate must arrange for the time and place of trial and notify all the members of the court as well as the officers whose duty it is to see that the accused is present. He will prepare copies of the technical charges and specifications for each member of the court. He must also inform everyone concerned regarding the proper uniform as prescribed by the president. He must summon all witnesses—those for the defense as well as those for the prosecution.

During the trial, the trial judge advocate has, in addition to his job of conducting the prosecution, the responsibility of keeping the required record of the proceedings. Although the actual transcription is usually done by a reporter, the trial judge advocate should always check the completed document, both for form and content, before signing it. For a general court-martial, WD Form 114 may be used as a record; Appendix 6 of the Manual offers a guide for filling it in. For a special court, Appendix 7 prescribes the form to be followed.

After the trial, the trial judge advocate will allow the defense counsel to

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advocate and the president, and forwarded to the appointing authority without delay.

One more step remains to be completed. The commanding officer who is directly concerned with the outcome of the trial must be notified immediately so that if the accused is under some form of restraint, the commanding officer can take appropriate action with respect to that status.

**Assistant Trial Judge Advocate.** The assistant trial judge advocate is competent to perform any of the functions of the trial judge advocate himself in the event the latter is unable to be present. In a special court, if no reporter is available, the assistant trial judge advocate may be called upon to keep the record of proceedings.

**Defense Counsel.** It is the responsibility of the defense counsel to guard the examine the record. It is then authenticated by the signature of the trial judge interests of the accused by all honorable and legitimate means known to the law. This is true even though the defense counsel knows or believes that the accused did commit the offense charged. However, if counsel feels that he is disqualified or unable to perform his duties properly for any reason such as bias, prejudice, or hostility, he should report this fact to the appointing authority.

When a person is appointed defense counsel, the first thing he should do is to study paragraphs 43 and 45 of the Manual for Courts-Martial which outline his duties. Upon receiving the charge sheet and accompanying papers he should examine them carefully to determine if the specifications and charges are complete and accurate, and if the expected testimony of the witnesses establishes the elements of the offense.

The next step is a private talk with the accused. The defense counsel should impress on the accused's mind that his sole purpose is to help him. He should make clear to the accused that everything said between them is in strictest confidence, and that the accused therefore need not hide anything from him.

The accused's three rights of counsel should be explained. He should be advised that he has the right to retain the present defense counsel; to ask for other military personnel who are available; or to hire civilian counsel at his own expense. In addition an explanation should be made of the meaning of a plea of guilty, of the accused's right to testify or remain silent, and his right to introduce evidence in extenuation or explanation of the offense.

The accused himself is usually the best available source of names of potential witnesses. The defense counsel should make a list of these and interview each one, in a manner similar to that outlined for the trial judge advocate.

During the trial, the duties of the defense counsel are comparable to those of a defense attorney in a civilian court. However, it is to be remembered that military courts are not inclined to be impressed by legal technicalities, unless it is clearly shown that some right of the accused is at stake. Thus although the defense counsel should take advantage of every rule of pleading and evidence at his disposal, he should avoid quibbling over petty details for the mere purpose of trying to becloud the issues or delay the trial.

If after a trial resulting in conviction, the defense counsel believes the accused deserves clemency, it may be worthwhile to write a letter to the appointing authority. The special circumstances surrounding the accused's case should be explained, and a plea made for remission of his sentence, or part of it.

**Assistant Defense Counsel.** The assistant defense counsel is competent to perform all the duties of the defense counsel, where circumstances require it.

**Reporter.** The president of the court is empowered by AW 115 to appoint a reporter. This reporter is commonly an enlisted man or a civilian. His duties are to record all the proceedings of the court and the testimony taken before it. Ordinarily the original transcript is made in shorthand and later typed. In a general court-martial, the Manual for Courts-Martial requires that one carbon copy of the typewritten parts of the record be made, and such additional copies as may be required by the trial judge advocate.

Reporters are entitled to compensation at the rates set by AR 35-4120 or at such lower rates as may be stated in the instrument appointing them. The piecework pay prescribed in those regulations, for transcribing notes and for making that portion of the original record which is required to be typewritten is 10 cents for each 100 words.

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# THE SUMMARY COURT-MARTIAL

## General

Having been detailed as summary court, an officer becomes an important cog in the system of military justice, and the propriety of his actions may well in specific cases determine the effectiveness of the entire system. The summary court, probably more than any other court, is able to assist the individuals who appear before it to become useful soldiers. The soldiers who are tried by summary court are not yet really bad but have simply indicated a tendency to fail to assume the responsibilities of good soldiers. The summary court may, by improper handling of a case, force the soldier into that class of soldiers who are of no value to the service. On the other hand, the summary court may impress upon an accused soldier his responsibilities and lead him away from the brink of disaster.

## Preliminary Procedure

Every officer should prepare himself to serve as summary court. This preparation will naturally be accelerated by the issuance of the order detailing him as summary court, so the discussion will begin at that point.

Upon receiving the order detailing him as summary court, the officer should check the order to determine if it is correct; for example, is the officer's name properly spelled; is his serial number properly listed?

The actual work will not begin, of course, until a case is referred to the officer for trial. Charges are referred to a court-martial for trial by completion of the 1st Indorsement which appears on page three of the Carge Sheet (WD AGO Form No. 115). The charges will normally be accompanied by statements of expected testimony which were secured or prepared by the accuser. With the charge sheet and these papers in his hands the officer is now ready to begin.

First, he should check the charge sheet to see if pages 1, 2, and 3 are completely filled out.

Most of the information for page one comes from the service record and any errors of omission or commission may be corrected by the personnel officer. Most important in the pre-trial preparation is careful study of pages two and three of the charge sheet. On page two appear the actual charges and specifications. As to each Article of War allegedly violated there appears a technical charge, e. g., "Violation of the 96th Article of War." Under each technical charge there will be one or more specifications. A specification simply indicates—or specifies—the manner in which the Article of War was violated. Before proceeding to trial, the summary court should check these charges and specifications to see whether the accuser has used the proper Article of War. For instance, larceny of government property must be charged under AW 94 and not AW 93; post exchange property and company fund property are not government property; larceny of this property then is chargeable under AW 93.

In order to ascertain that the proper technical charge has been used, a knowledge of the scope and intent of the particular Article of War which is alleged to have been violated is required. Reading the article itself (MCM Appendix 1) is advisable, but even more helpful is the discussion of the punitive articles, 54 through 96, contained in chapter 26 of the Manual for Courts-Martial.

When it has been determined that the technical charges are proper, the specifications should be studied to see if they are correct in form. Appendix 4 of the Manual contains forms for specifications indicating the correct wording for most violations. These are not, however, the only proper specifications; there are many offenses, particularly under AW 96, for which no form is set out in Appendix 4. In those instances the summary court officer should be sure that the specification is clear and that the words of the specification itself, if true, set out facts that constitute an offense.

On page three of the charge sheet appears the signature of the accuser, the affidavit to the charges, and the 1st indorsement. Charges must be signed by the accuser. The commanding officer of the accused generally signs the charges but the charges are proper if signed by any person subject to military law. The affidavit, executed by a person competent to administer an oath (AW 114) is an

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(WRITE NOTHING ABOVE THIS LINE)

## CHARGE SHEET

Aberdeen Proving Ground, Md. (Place), 27 July (Date), 1944

Name, etc., of accused DOE, JOHN M., 33 064 758, Private 56th Ordnance Company (MM), Aberdeen Proving Ground, Maryland.
(Give last name, first name, and middle initial in that order followed by serial number, grade, company, regiment, arm or service, or by other appropriate description of accused. Alias names, etc., to follow in same manner)

Age 26 Pay, $ 50.00 per month. Allotments to dependents, $ 22.00 per month.
(Base pay plus pay for length of service)

Government Insurance deduction, $ 6.80 per month.

Data as to service: Prior Service: None. Current Service: Inducted 25 Feb 43 under the Selective Service Act and transferred to Enlisted Reserve Corps. Reported to active duty 4 Mar 43.
(As to each terminated enlistment, give including dates of service and organization in which serving at termination. As to current enlistment, give the initial date and the term thereof. Give similar data as to service not under an enlistment)

Data as to witnesses, etc.:

FOR THE ACCUSED: None
(Give names, addresses, and note if for accused. List documentary evidence and note where each item thereof may be found)

AGAINST THE ACCUSED

1st Lieutenant PAUL H. SAUNDERS, 56th Ordnance Company (MM), A.P.G., Md.

1st Sergeant JOHN B. MARTIN, 13 943 176, 56th Ordnance Company (MM), A.P.G., Md.

DOCUMENTARY EVIDENCE

Extract Copy of Morning Report of 56th Ordnance Company (MM). (See Exhibit A attached)

Extract Copy of Morning Report, Post Guard House, Fort Jay, New York. (See Exhibit B attached)

C E R T I F I C A T E

I certify that I am the custodian of the accused's Service Record and that the above entries are correct to the best of my knowledge and belief.

William J. Minister

WILLIAM J. MINISTER
1st Lt. Ord Dept.,
Ordnance School

Data as to restraint of accused: Administratively restricted to the limits of the company area since 1730, 25 Jul 44.
(Give date, place, and initial date of any restraint of accused)

W. D., A. G. O. Form No. 115
April 2, 1928

o16—67760-1

Figure 2. Charge Sheet (W.D., A.G.O. Form No. 115).

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CHARGE : Violation of the 61st Article of War.

*Specification* : In that Private JOHN M. DOE, 56th Ordnance Company (MM), did, without proper leave absent himself from his organization at Aberdeen Proving Ground, Maryland, from about 0001, 22 July 1944, until returned to Military Control at Fort Jay, New York on 24 July 1944.

(Additional sheets, if necessary, for charges and specifications will be attached here. Ordinary 8 by 12½-inch paper will be used for additional sheets)

(2)

(WRITE NOTHING BELOW THIS LINE) a16—97769-1

Figure 2. Charge Sheet (W.D., A.G.O. Form No. 115)—Continued.

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I have served a copy hereof on (each of) the above-named accused, this _____ day of _____, 19____

(Signature) _____, *Trial Judge Advocate.*

_____
(Grade and organization)

(SPACE FOR USE WHERE TRIAL IS BY SUMMARY COURT)

CASE No.....

| SPECIFICATIONS AND CHARGES | PLEAS | FINDINGS | SENTENCE OR ACQUITTAL AND REMARKS |
|---|---|---|---|
| To the Specification and Charge | Guilty | Guilty | To be restricted to the limits of his post for three (3) months and to forfeit fifteen dollars($15.00) of his pay<br><br>No previous convictions considered. |

HQ, ASF, ORD DEPT, ORDNANCE SCHOOL, Aberdeen Proving Ground, Md. Place _____, Date 1 Aug, 1944

Henry P. Haller

HENRY P. HALLER, Major, Ordnance Dept., Summary Court.
(Signature, grade and organization)

Headquarters ASF, ORD DEPT, ORDNANCE SCHOOL, 3 Aug 1944
Aberdeen Proving Ground, Md. (Place and date)

Approved and ordered executed
(Action of reviewing authority)

William T. Tomlinson, *Commanding.*
(Signature, grade and organization)
WILLIAM T. TOMLINSON
Colonel, Ord Dept.

Entered on service record in cases of conviction _____
(Initials of personnel adjutant)

(4)

(WRITE NOTHING BELOW THIS LINE) 16—27709-1 U. S. GOVERNMENT PRINTING OFFICE

Figure 2. Charge Sheet (W.D., A.G.O. Form No. 115)—Continued.

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(WRITE NOTHING ABOVE THIS LINE)

(Signature of accuser) Paul H. Saunders
PAUL H. SAUNDERS
1st Lt, Ord Dept.
(Grade, organization, arm or service)

**AFFIDAVIT**

Before me, the undersigned, authorized by law to administer oaths in cases of this character, personally appeared the above-named accuser this 27th day of July, 19 44, and made oath that he is a person subject to military law and that he personally signed the foregoing charges and specifications, and further that he * ~~has personal knowledge of the matters set forth in specifications~~ ; and * has investigated the matters set forth in specification and Charge (Indicate by specification and charge numbers), and that the same are true in fact, to the best of his knowledge and belief.

(Signature) Edwin A. Stanton
EDWIN A. STANTON (Grade and organization)
2d Lt, Ord Dept,
Summary Court (character, as summary court, notary public, etc.)

NOTES.—At (*) strike out words not applicable.
If the accuser has personal knowledge of the facts stated in one or more specifications or parts thereof, and his knowledge as to other specifications or parts thereof is derived from investigation of the facts, the form of the oath will be varied accordingly. In no case will he be permited to state alternatively, as to any particular charge or specification, that he either has personal knowledge or has investigated.
If the oath is administered by a civil officer having a seal, his official seal should be affixed.

**1st IND.**

Headquarters ASF, ORD DEPT., ORDNANCE SCHOOL, Aberdeen Proving Ground, Md. (Place) 29 July (Date), 19 44

Referred for trial to Major HENRY P. MALLER, Ordnance Dept.
(Grade, name, and organization of summary court, or trial judge advocate)

Summary (Summary) (Trial judge advocate of special or general) court-martial appointed by paragraph 26, Special Orders No. 174,

Headquarters ASF, Ord Dept., Ord Sch, A.P.G., Md. 20 July, 19 44

By order (Command or order) of Colonel TOMLINSON (Grade and name of commanding officer)

Robert L. Warren, ~~2d Lieut~~
ROBERT L. WARREN
Capt, Ord Dept,
Secretary.

o16—27769-1

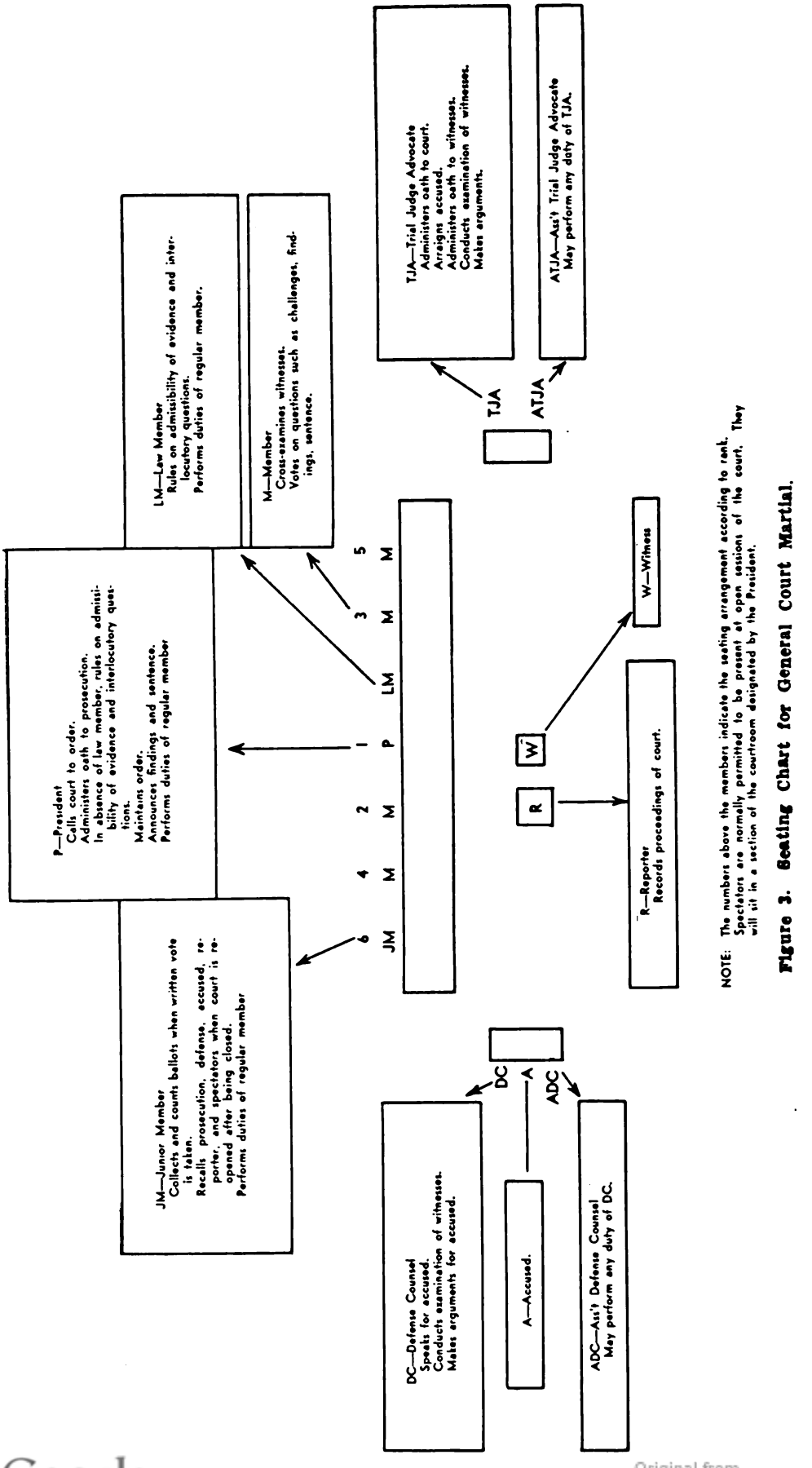
**Figure 2. Charge Sheet (W.D., A.G.O. Form No. 115)—Continued.**

indication that the accuser has sworn that he believes the charges to be true and that his belief is based either on his personal knowledge or his investigation (not both to a particular specification). The summary court officer may not proceed on unsworn charges if the accused objects and may not proceed on unsigned charges in any case.

Once these preliminary steps have been accomplished, the summary court officer is ready to give consideration to the trial itself, that is, the time, the place, and the witnesses.

As to time and place, the court should be convened as early as possible, generally the same day or the next day after the charges and allied papers are received. The trial should be conducted in a room where there will be no interference. Spectators are permitted but persons who are to be witnesses should not be allowed to remain in the room during the testimony of the accused and other witnesses.

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NOTE: The numbers above the members indicate the seating arrangement according to rank. Spectators are normally permitted to be present at open sessions of the court. They will sit in a section of the courtroom designated by the President.

**Figure 3. Seating Chart for General Court Martial.**

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On page one of the charge sheet there will be listed all witnesses known to the accuser. On the basis of the statements of expected testimony, the summary court can determine, in general, the nature of the testimony the witness might be expected to give and can thereby determine what witnesses may have to be called. Quite frequently the statement of expected testimony itself will indicate that all the witness might relate is based on inadmissible hearsay and thus he need not be called. It is, of course, undesirable to summon a number of witnesses and require their presence at the trial if they are not actually needed, for instance, if the accused should plead guilty. In many cases one can anticipate the plea of the accused from the accompanying statements and if it appears that the accused will plead guilty only the most important witnesses need be called initially. In such a case, should the accused plead not guilty the summary court may announce a continuance in order to call the additional witnesses. In order to secure the appearance of a necessary witness the summary court should notify the witness personally if he is an officer or his commanding officer if he is an enlisted man. Civilians can be compelled to appear by issuance of a subpoena (MCM Par 97c) and are entitled to be paid if they are not government employees; but it is generally easier and more satisfactory to simply request the witness to appear and arrange for his transportation if he resides nearby. Arrange for his payment ($1.50 a day plus $3.00 for subsistence, plus 5c a mile if no transportation is furnished) only if he requests it.

When witnesses are unavailable, for example, because of absence or sickness, their testimony can be secured by taking depositions. The summary court will prepare questions which he might normally ask the witness if the witness were present in court. These questions or interrogatories should be shown to the accused who may also ask questions called cross-interrogatories. The accused has the same right to initiate a deposition in which case the summary court may introduce the cross-interrogatories. Depositions are prepared on WD AGO Form No. 118, and both those initiated by the accused and the summary court will be prepared and forwarded by the Summary Court (MCM Par. 98).

To avoid the inconvenience of calling a witness and the delay required to take a deposition, it is frequently desirable to enter into a stipulation with the accused, that is, agree to the existence of a certain fact. For example, the accused may deny he was absent without leave, but he will agree that if Private John Doe were present, John Doe would testify that he apprehended the accused in Baltimore at 2300, 1 June 1944; thus John Doe need not be called. Certainly, however, the summary court should not induce the accused to enter into a stipulation as to the existence of a fact which the accused denies.

The foregoing discussion indicates the steps that should be taken by a summary court to prepare himself for trial. For a guide to trial procedure in a Summary Court, see Appendix I at the end of the chapter.

## TRIAL PROCEDURE

### Convening Court

A general or special court-martial assembles at its first session in accordance with the order convening it; thereafter, according to adjournment. The president of the court will fix the hour and date for the first and subsequent meetings.

When the president is satisfied that everything is in order and the court is ready to proceed, he calls the court to order. Members will be seated according to rank alternately to the right and left of the president. In a general court-martial, however, the law member regardless of rank will be seated on the immediate left of the president. If the rank of a member is changed after he has been appointed to the court, he will sit according to his new rank. Other personnel and the accused will be seated as the president directs, except that the accused will always be permitted to be near his counsel.

The presence of the accused throughout the proceedings in open court is essential, except where after arraignment and during the trial the accused has escaped, in which case the court may proceed with the trial notwithstanding the accused's absence.

At least the minimum number of members and the accused being present, the trial judge advocate will announce that he is ready to proceed with the case

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and will announce the name of the accused, and, at the opening session of the trial, ask the accused whom he desires to introduce as counsel.

The accused and his counsel having been introduced, the trial judge advocate in a general court-martial will swear the reporter and then ask the accused if he desires a copy of the record of trial. The trial judge advocate will, at the first session in a trial, announce the names of the members present. He will account for the members absent by reading their names and the reason for their absence.

During the swearing of the court all personnel of the court and spectators will rise and remain standing until the ceremony is completed. During the introduction of the accused and his counsel and the naming of the members present, the accused and the personnel of the prosecution and defense will stand.

## Challenges

### General

After announcing the names of the members present, the trial judge advocate will disclose in open court every ground of challenge which the records indicate might exist in the case, that is, facts which might prejudice the rights of the accused or defeat the jurisdiction of the court. He will request that any member who knows of any other grounds for challenge either against himself or another member state such facts. If it then appears from such disclosure that a member is subject to such challenge and it is not disputed, he will be excused immediately by the president.

In any event, the accused and the trial judge advocate have the right to challenge and disqualify members of the court and thus prevent such members from taking part in the trial of the case.

### Challenges for Cause

Only the members of general or special courts-martial are subject to challenge. Challenges should be made before arraignment of the accused, but the court may permit a challenge for cause to be presented at any stage of the proceedings. There is no limit to the number of such challenges allowed and every member is subject to challenge for cause. Due diligence must be exercised or this right may be lost. The court shall determine the relevancy and validity of each challenge and will permit only one member to be challenged at a time. Challenges for cause may be presented for various reasons. Among the grounds of challenge for cause specifically listed are:

1. That the challenged member is not eligible or competent to serve on courts-martial.
2. That he is not a member of the court.
3. That he is the accuser as to any offense charged.
4. That he will be a witness for the prosecution. In this connection, a member who will be a witness for the defense will not be disqualified unless it appears that his status as a member would cause some doubt as to the fairness or impartiality of the trial.
5. In the case of rehearing, that he was a member of the court that first heard the case.
6. That he personally investigated an offence charged, or was a member of a court of inquiry regarding the instant case.
7. That he could not render an impartial decision as he has formed or expressed a positive opinion as to the guilt or innocence of the accused.
8. That he will act as reviewing authority or staff judge advocate on the case.
9. That he will gain or lose some personal advantage depending upon the conviction or acquittal of the accused.
10. That there exists any other reason such or prejudice, hostility, bias, relationship, or participation in the trial of a closely related case.

Courts should be liberal in passing upon challenges, but need not sustain a challenge upon the mere assertion of the challenger. The burden of maintaining a challenge rests on the challenging party. A challenge may be withdrawn by the challenger for any reason whatsoever and the matter will not be pursued further. Yet, a failure to sustain a challenge or prosecute it to a successful termination where good grounds are shown may require a disapproval by the

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reviewing authority on jurisdictional grounds or cause a rehearing because of errors prejudicing the rights of the accused.

The trial judge advocate has a prior right to present his challenges which are disposed of in order. Then, the accused must be afforded an opportunity to exercise his right to challenge. In both cases, the procedure is exactly alike. When it is obvious that the challenge for cause will be sustained unanimously, the member may be excused by the president without any vote unless some member objects to the challenge. In the event of objection, the challenge must be decided by the court and both sides will be given opportunity to present evidence as to the case for disqualification. If it is desired by either side or by any member, the challenged member may be sworn and cross-examined; other witnesses may also be called. Each side may then make arguments concerning the cause for challenge, after which the court will be closed and the issue decided by secret written ballot. The challenged member will take no part as a member in the hearings, deliberations, or voting upon a challenge against him, and he will withdraw from the room when the court is closed. If the challenge is sustained by a majority vote of the members present, he will withdraw from the trial, otherwise he will resume his seat.

### Peremptory Challenges

In addition to challenges for cause, each side is entitled to one peremptory challenge against any member of the court except the law member. A peremptory challenge is simply a device for removing a member from the court when no grounds for challenge for cause can be established. There need be no reason given and the member so challenged will be excused by the president of the court and withdraw forthwith. No discussion on the challenge is in order and no vote is required. The fact that a member was challenged for cause and the challenge was not sustained does not prevent his removal from the trial by peremptory challenge. There are two limitations in regard to this type of challenge. One is that each side may have only one peremptory challenge even though there are several defendants in the case and the other is that a peremptory challenge must be made before arraignment or the right is deemed to be waived.

If the seating of the court has been disarranged by the removal of one or more members due to challenge, the court will reseat itself according to rank as described earlier.

## Swearing the Court

After the proceedings on challenges are concluded the members of the court, trial judge advocate and assistant trial judge advocate, are sworn. The members of the court are sworn by the trial judge advocate and the trial judge advocate and his assistant are sworn by the president of the court. It is to be noted that the defense counsel is not sworn and at no time is required to take an oath unless he is required to be called to the stand as a witness.

## Arraignment

The court having been sworn, it is now ready to proceed with the trial. The accused must be confronted with the accusations against him. The trial judge advocate will read to the accused the charges and specifications, including the signature of the accuser. This procedure is known as the arraignment. During the arraignment the accused and the personnel of the prosecution and the defense will stand.

Additional charges may be introduced at any time prior to the swearing of the court provided the accused has had ample opportunity to prepare his defense. The rights of challenge must be afforded him as in the other charges upon which he is being tried. If such rights have been afforded the accused, the accused may be arraigned on the additional charges, and the trial may proceed on both the original charges and the additional charges.

## Pleas

### General

Following arraignment, the accused will be asked to plead. His pleas are his reply to the accusations against him. There are two types of pleas: special pleas

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and pleas to the general issue. Special pleas are further subdivided into pleas to the jurisdiction, pleas in abatement, and pleas in bar of trial.

Special Pleas

**Plea to Jurisdiction.** A plea to the jurisdiction denies that the court has the right to try the case because it either does not have jurisdiction over the person or over the subject matter. For example, it may assert that the appointing authority lacked the power to appoint the court; that ineligible persons or officers are sitting on the court; that the accused is not within the jurisdiction of the court. An officer may only be tried by a general court-martial, thus a special court lacks jurisdiction, and should a special court attempt to try an officer, he would assert his objection by entering a plea to the jurisdiction. Likewise, failure to appoint a law member to a general court-martial is fatal to the jurisdiction of the court. These jurisdictional defects cannot be waived. They can be asserted at any time during the trial, and even if not asserted, a trial held without correcting them is a nullity and has no effect.

**Plea in Abatement.** A plea in abatement merely delays the trial pending correction of formal defects and is based upon some objection to a charge or specification or an irregularity such as misspelling the name of the accused or insufficient allegations of time and place. These defects are usually easily corrected, and the trial of the case will then proceed. If the court sustains the plea, it may then order the personnel of the prosecution and defense to make the necessary corrections right then and there, or according to circumstances, direct that the specification be stricken out and disregarded or permit it to be so amended as to obviate the objection. If the correction is made right in court, then upon application of the defense for a reasonable continuance, the case may be delayed so that the necessary preparation can be made on the amended charges. The right to have these defects corrected is waived by failure to assert them at this point in the trial and does not defeat the jurisdiction of the court if so waived.

**Plea in Bar.** A plea in bar asserts, in effect, that by operation of law, the accused may not legally be tried for the offense in question at any time; that his trial is barred now and in the future. The grounds for this plea are not numerous and will be examined carefully by the court.

*Former punishment.* Punishment under the 104th Article of War in a proper case may be pleaded in bar of trial. Such punishment, however, does not bar trial for another crime or offense growing out of the same act or omission. In addition, this plea will not be sustained if the punishment was improperly imposed because the offense was not a minor one within the scope of Article of War 104. Thus, if moral turpitude was involved in the crime, punishment under that article was improper and hence no bar to trial. So, larceny of an automobile is not properly punishable as a minor offense, and even if company punishment had been imposed a plea in bar would not be sustained.

*A pardon* by the President of the United States which exempts the individual on whom it was bestowed from the punishment the law provides for a crime he has committed is proper grounds for a plea in bar.

*Constructive Condonation* of desertion is an additional ground for a plea in bar. An unconditional restoration to duty without trial of a deserter by the general court-martial appointing authority operates to excuse the offense and may be pleaded in bar of trial for the desertion to which such restoration relates.

*Promised Immunity* may be pleaded where the general court-martial appointing authority had promised the accused immunity from the consequences of certain acts prior to their commission or prior to trial. This might be the case where a witness was promised immunity from prosecution provided he would waive his right against self-incrimination and testify in another case.

*Former Trial* also is the basis for a valid plea in bar. Once a person has been tried by court-martial or federal civil court he cannot, without his consent, be tried a second time for the same offense. However, he cannot claim double jeopardy in case of a court-martial until the reviewing authority, and, the confirming authority, if there be one, shall have taken final action upon the case. But it is well to remember that a person has not been tried if the pro-

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ceedings were void for any reason, such as lack of jurisdiction over the person or the offense. Also, the same acts when committed in a state may constitute two distinct offenses, one against the United States and the other against the state law. In such a case trial by either jurisdiction does not bar trial by the other.

Another bar in trial is the *Statute of Limitations*, provided for in Article of War 39. This article establishes a period after which an accused person may not be tried without his consent. It is unreasonable and unfair that a man should remain subject for the entire duration of his life to punishment for a minor offense which he may have committed at some time earlier in his life. Therefore, the law both military and civil, limits prosecutions after specified periods of time have elapsed. Article of War 39 provides that the mere passage of time will not prevent prosecution for murder, mutiny, or desertion in time of war. These offenses are so serious that it is reasonable that a person should remain subject to punishment at any time. The statute of limitations for desertion in time of peace and for violations of the 93rd and 94th Articles of War, is three years. The 93rd Article of War, entitled "Various Crimes," includes most of the common law felonies (except murder and rape) such as larceny, robbery, arson, etc. The 94th Article of War is entitled "Frauds Against the Government" and includes misappropriation and misappropriation of government funds or property. On all other offenses, the statute of limitations is two years.

The statute of limitations, that is, the two or three year period as the case may be, begins to run from the commission of the offense. It makes no difference that no one other than the accused was aware that the offense was committed. A person who steals and succeeds in concealing the theft for three years could assert the statute of limitations and prevent his trial if prosecution were attempted following the three year period. For example, desertion is committed at the time that there is coincident absence without leave and the intent never to return. The statute begins when these first exist. Fraudulent enlistment occurs when a soldier by means of willful misrepresentation or concealment procures himself to be enlisted in the army and receives compensation for his service under this enlistment. Thus for this offense the statute of limitations would begin to run when he first received the compensation.

The fact that the accused concealed the offense or even his own identity does not prevent the running of the statute. It is even possible that a soldier might commit an offense and hide away in a cave for the entire two year period; then he could come out and brag about having committed the offense; and he could not be punished for the offense.

There are certain conditions, however, which do prevent the statute from running. The period of time does not accrue where the accused is outside the jurisdiction of the United States. Should a soldier desert in time of peace and escape to Mexico, the time that he spent in Mexico would not serve to prevent his trial were he later apprehended. Likewise, a soldier who can not be tried by reason of some manifest impediment may not offer the time during which the impediment existed to prevent his trial. A soldier who is ill and unable to appear in court or who is confined by civilian authorities could not be tried by military authorities even though he was within the territorial jurisdiction of the United States. Such a condition is known as a manifest impediment.

The mere passage of time, itself, does not prevent trial; rather it is incumbent upon the accused to assert during the trial the fact that the statute has run and that he can not be tried. It was formerly required of the court that the accused be advised during the trial that he had the right to plead the statute if the court noticed that two or three years, whichever was applicable, had elapsed. The Judge Advocate General now holds that a court is not obligated to advise the accused of the advantages of this plea. In order to establish the plea, the accused need only show that the time has elapsed. The burden then shifts to the prosecution to prove that notwithstanding the passage of time the trial is not barred because the accused was out of the jurisdiction or under manifest impediment.

**Pleas to General Issue.** After the special pleas have been heard and a ruling made upon each, the pleas to the general issue are received. These general pleas go to the merits of the case; that is, they involve the basic question of whether

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the accused is or is not guilty of the offenses charged against him, or at least, whether he admits the offense or stands upon his right to have the commission of the offense proved against him.

*Guilty.* The accused may plead guilty. By so doing he admits having committed all the elements of the offenses charged but is not barred from introducing any evidence which he may have available in extenuation or mitigation. The court may and should allow the withdrawal of a plea of guilty if it appears at any time during the trial that it was made improvidently or that the evidence indicates that the accused is not guilty.

*Not Guilty.* He may enter a plea of not guilty. The accused has an absolute legal right to plead not guilty and require the prosecution to establish all the elements of the offenses charged beyond a reasonable doubt.

*Guilty of Lesser Included Offense.* In addition, the accused may plead not guilty of one or all of the offenses charged but guilty of a lesser included offense or offenses. In a specification for larceny of several articles, for instance, he might admit the taking of some and deny the theft of the others.

## Motions

**General.** A motion is simply a request by either side for the court to take some affirmative action. Motions may be made at almost any time during the case depending upon the circumstances and the nature of the particular motion. Motions specifically noted in the Manual for Courts-Martial include a motion to sever, a motion to strike, and a motion for a finding of not guilty.

**Motion to Sever.** A motion to sever where several people are being tried jointly is made by one of two or more joint accused persons who wish to be tried separately from the others. It will usually be made at the arraignment. This motion is usually made where an accused desires to avail himself of testimony of one or more of his co-accused, or of the testimony of the wife of one of the accused. It might also be made by an accused where the defense of another accused is antagonistic to his own, or where the evidence as to another will prejudice his defense in some manner.

**Motion to Strike.** By a motion to strike, an accused may object to the sufficiency of a specification on the ground that it does not state a cause of action, or that because of some substantial defect the accused is prevented from making a proper plea or defense. Ordinarily, this motion should be made upon arraignment and, if sustained, the court will direct that the specification be stricken out and disregarded.

**Motion for Finding of Not Guilty.** A motion for a finding of not guilty will be made at the close of the prosecution's case and before the opening of the case for the defense. The motion, made by the defense, requests that the court consider whether the evidence before it is legally sufficient to support a finding of guilty as to each specification designated in the motion. The court may require that the motion indicate specifically wherein the evidence is legally insufficient. The court will determine the matter as an interlocutory question and will take action accordingly. They may require the prosecution to reopen its case and produce additional evidence, or they may sustain the motion and enter a finding of not guilty of such specification and, where necessary, of the proper charge. However, if there is sufficient evidence before the court tending to establish every essential element of an offense charged or any lesser offense included in any specification to which the motion is directed, the motion should not be granted. The entry of the motion at this point, even though it is not sustained, does not preclude the court from later finding the accused not guilty after all the evidence has been presented.

## Nolle Prosequi

Although not a formal motion, a nolle prosequi is a declaration of record by the prosecution to the effect that, by direction of the appointing authority, certain charges or specifications or both are withdrawn, and will not be prosecuted during the present trial. Proper grounds for use of the nolle prosequi are a substantial defect in the specification or charge, or insufficient evidence to prove the charge or specification. A nolle prosequi is not an acquittal or a pardon

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and it may not be the basis for a plea of double jeopardy or former trial in a subsequent prosecution. The declaration of nolle prosequi may be entered either before or after the arraignment and pleas.

### Opening Statements

Immediately before the introduction of evidence for the prosecution, the trial judge advocate may make an opening statement which is a brief description of the issues to be determined and the proof which he expects to present to the court. He will avoid any prejudicial statements or suggestions on which no admissible evidence is available or intended to be offered.

The defense may make an opening statement similar to that of the prosecution. This is ordinarily made just after the prosecution has rested its case or immediately following the opening statement of the trial judge advocate. Following any opening statements will come the presentation of evidence.

## EVIDENCE

### General

The belief is prevalent among enlisted men and officers of the Army that when an accused is brought before a court-martial for trial, his conviction is assured. It is true that, before an accused is brought to trial, the charges against him and the expected testimony are scrutinized and passed upon by many officers, with the result that if the case brought to trial it is likely that the accused will be convicted. Regardless of these compelling circumstances, however, the evidence is carefully and fully considered by the court-martial, and the case decided upon the facts. As compared to civil courts, the military courts are even more solicitous in respect to the rights and defense of the accused. For example, a court-martial very often calls for evidence not submitted by either the prosecution or the defense, especially if this evidence tends to explain or mitigate the offense. In addition, a court-martial will not be bound by legal technicality, but will consider all revelant facts. This is particularly true after a finding of guilty when evidence of the accused's age, length of service, and pay will always be heard; this evidence may have a bearing upon the severity of the sentence to be adjudged.

The rules of evidence generally recognized in the trial of criminal cases in the district courts of the United States will be applied in courts-martial. On interlocutory questions other than challenges the court may, in its discretion, relax the rules of evidence to the extent of receiving affidavits, certificates of military and civil officers, and other writings of similar authenticity and reliability, such as a physician's certificate of illness of a witness, unless a particular writing is objectionable because it might injure or prejudice the rights of the accused or the interests of the government.

The objection frequently expressed in civil courts, "I object to the evidence on the ground that it is incompetent, irrelevant, and immaterial" states in brief the substantial grounds which limit matters which may properly be presented to a court. Not only are these grounds valid in civil courts but they apply with equal force in trials before courts-martial. Evidence, then, to be admissible must be competent, relevant, and material.

Evidence is material when the fact which it tends to prove is one of the important issues in the case. For instance in a murder case evidence that the victim is dead would certainly be material. By relevant is meant, pertaining to or connected with the offense. In the trial of a soldier for larceny of $100.00, evidence that he made the statement 25 years earlier "I would like to have a million dollars" would be irrelevant, though it might be material. Evidence that an accused person five hours before an armed robbery was seen with a loaded pistol and was heard to make the statement, "I'm broke and I know one way to get some money," would be both material and relevant. Evidence is regarded as incompetent when it is so unreliable, even though material and relevant, that a court can not accept it. Hearsay evidence, which will be discussed later, is regarded as incompetent. Likewise, an uncorroborated confession obtained involuntarily must also be rejected as incompetent.

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## Types of Evidence

Evidence is divided into three classes: testimonial, real, and documentary.

**Testimonial Evidence.** Testimonial evidence consists of statements made in court by witnesses sworn to tell the truth. These statements are answers to questions asked of the witnesses by the trial judge advocate, the defense counsel, and the court.

**Real Evidence.** Real evidence is furnished by things themselves, on view or inspection, as distinguished from an oral description of them by a witness. It includes such things as the physical appearance of a person when exhibited to a court, scars, marks, wounds, fingerprints, or inanimate objects such as the weapon used in the commission of a crime.

**Documentary Evidence.** Documentary evidence consists of any properly authenticated paper or document such as a birth certificate or an extract of a service record or morning report. It also includes unofficial writings such as personal letters.

**Direct and Circumstantial Evidence.** All of the forms of evidence mentioned above may be either direct or circumstantial. Direct evidence is evidence which if true would prove or disprove a fact in issue. In a trial for larceny of a gun, testimony of a witness that he saw the accused take the weapon would be direct evidence. Circumstantial evidence is that evidence which tends to establish the issue only by proof of various other matters. For example, in a trial for murder, testimony of a witness that he had seen the accused stab the deceased would be direct evidence, whereas testimony of the witness that the accused and the deceased were bitter enemies and that the witness saw the accused in the immediate vicinity of the murder shortly after the murder occurred would be circumstantial evidence. Circumstantial evidence in itself is not usually sufficient to convict unless the evidence is so strong that it unerringly points to the accused as the person who committed the crime.

## Presumptions

Some facts are presumed to exist and need not be established in the absence of proof to the contrary. For example, the accused is always presumed to be innocent until proved guilty beyond a reasonable doubt, and the burden is on the prosecution to prove such guilt. A woman is presumed to be chaste in the absence of sufficient evidence to the contrary. A properly stamped, addressed, and mailed letter is presumed to have reached its destination. These and many other presumptions are not conclusive and may be rebutted.

## Opinions and Conclusions

In general, laymen are not permitted to testify as to their opinions or conclusions. It is the function of the court to draw conclusions from the facts in evidence. Laymen, however, may testify in regard to matters of common observation and experience; for example, as to the speed of a moving vehicle and the intoxication of a person. Of course, expert witnesses are permitted to give their opinions on matters within their special fields. A doctor who has examined a body, for example, may give his opinion as to the cause of death.

## Hearsay Rule

**General Rule.** With some exceptions, evidence must be given in court under oath and must be subject to cross-examination. A fact cannot be proved by hearsay, that is, by showing that someone other than the witness stated it to be so. Hearsay is an out-of-court statement offered for the purpose of proving the truth of the facts stated therein. It is evidence that did not come to the witness of his own personal knowledge. Thus, Smith's testimony that he heard Brown say Roe shot Doe would be inadmissible in the trial of Roe for the homicide. On the other hand Sergeant Jones' testimony that Private White in Sergeant Jones' presence, accused his superior officer of being a traitor would be admitted upon the trial of Private White for making an insulting and derogatory statement of his superior, since it is offered to prove that Private White said the words, not that the words were true.

**Exceptions to the Hearsay Rule.** The hearsay rule is subject to a number of exceptions. Each is based upon necessity and common sense.

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*Dying Declarations.* Dying declarations are statements of a victim of a homicide, made while in fear of immediately impending death, which identify the assailant and recite the facts leading immediately to his death. Such statements may be recited in court by witnesses who heard them made if the trial is for the wrongful death of the person who made the declaration. It is to be borne in mind that the declaration must be made while the victim is in fear of impending death. The statements of a man made at the time he received a minor flesh wound would not be admissible if he died several weeks later from blood poisoning.

*Confessions and Admissions.* Confessions of guilt of the crime charged are admissible if shown to be voluntary and not in response to violence, threat, pardon, promise of lesser penalty, or good treatment. A confession is a statement made out of court before trial and should not be confused with a plea of guilty. An accused person cannot be convicted on an uncorroborated confession; the corpus delicti, that is, the fact that a crime has been committed, must first be established. For example, a defendant could not be convicted of larceny, even though he confessed, unless it could also be shown that some property had been taken wrongfully. A confession, although involuntary, may lead to the discovery of other evidence which can be used. If a soldier is forced to confess to a murder and incidentally tells where he hid the gun with which the offense was committed, evidence could nevertheless be introduced to show that the gun was discovered in the place indicated by the accused. After introduction of this evidence, the portion of the involuntary confession relating to the hiding of the gun could properly be introduced.

*Admissions Against Interest.* In many instances the accused has made statements which fall short of being acknowledgements of guilt, but which nevertheless constitute important admissions as to his connection with the offense charged. These are admissible in evidence without any showing that they were voluntarily made. Thus, a statement made by an accused charged with homicide that he was in the room where the homicide occurred is an admission. The mere fact that an admission was made during an investigation does not make it inadmissible.

*Statements of Conspirators and Accomplices.* In cases where several persons join in a common design in committing an offense, all acts and statements of each in furtherance of the common design are admissible against all of them. Thus, where several men conspired to rob a bank, the statements made by the ringleader in posting the men for their part of the robbery, are admissible against all of them.

*Res Gestae.* Another exception to the hearsay evidence rule is evidence which is part of the res gestae; that is, a statement is part of the res gestae when it is made contemporaneous with the offense itself and serves to characterize and explain the offense. Exclamations, declarations, and statements of participants and even bystanders, may be part of the res gestae. For example, suppose a man and his wife were riding down the road in an automobile and suddenly ran into another automobile and killed the only occupant. If no one saw what occurred it might be difficult to prove the circumstances. Assume, however, that immediately after the accident a policeman rushed around the corner to the scene and pulled the wife of the driver from the wrecked automobile; as he did so, she exclaimed to her husband, "John, I told you not to drive 60 miles an hour on this crooked road." Later, if a trial for manslaughter resulted, neither the accused driver nor the wife (because of her relationship to the husband) could be required to testify against the driver over his objection, but the statement of the wife could be recited by the policeman to establish one of the causes of the accident. This statement is admissible even though it is hearsay because it was a part of res gestae.

### Direct and Cross-Examination

**General.** Testimony is elicited by questions from counsel and the court. Counsel for the side which calls a witness asks the first questions, and this is known as direct examination. Then opposing counsel is permitted to ask his questions, and this is known as cross-examination. The cross-examination is limited in that it must be within the scope of the direct examination, that is, bearing upon the subject matter brought out on direct examination. The only exception to this rule is that cross-examination may go beyond the scope of the direct exam-

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ination for the purpose of impeaching the credibility of a witness; for instance, by showing that the witness made a prior contradictory statement, or that the witness was a convicted perjuror or had a criminal record.

**Leading Questions.** Leading questions are those which suggest the answer to the witness or are so phrased that the answer is put in the mouth of the witness. They may not be used on direct examination, but are allowed on cross-examination by the adverse party. The question, "You saw Jones strike Smith, didn't you?" is leading and is objectionable when used on direct examination, but may be used on cross-exanimation.

## CLOSING ARGUMENTS

After both sides have rested, arguments may be made to the court by the trial judge advocate, the accused and his counsel. The trial judge advocate has the right to make the opening argument, and if any argument is made on behalf of the defense, he also has the right to make a closing argument.

## VOTING

### Voting on Findings

After the presentation of all evidence to the court, the court is then closed and it proceeds to vote its determination of the guilt or innocence of the accused The members of the court are free to discuss the case in closed session before the actual vote is taken. When each member has reached his decision, the court is ready to vote. The vote must be by secret written ballot, and each member must vote. The junior member of the court counts the ballots, the president verifies the count and announces the result to the court. The order in which the charges are to be voted upon is determined by the president. It is required, however, that the vote on the specifications to a particular charge be completed before the vote is taken on the charge. Each member must write one of the following for each of the specifications: guilty, not guilty, or guilty with exceptions or substitutions, setting these out in full. The vote on the charges is either guilty, not guilty, or not guilty but guilty of a violation of some other Article of War.

**Vote Required.** When the death penalty is mandatory, that is, when a person must be sentenced to death upon conviction, for example, spying under AW 82, the vote of the court on the verdict must be unanimous in order to convict. In all other cases, a two-thirds vote is required. If the required number of votes of guilty is not received, then the accused is acquitted. Nothing less than two-thirds is sufficient. There is no such finding as "mistrial" by a court-martial.

**Alternative Finding.** The court also has the alternative of finding the accused guilty of a lesser included offense. For example, the offense of desertion ordinarily consists of absence without leave accompanied by an intent not to return to the service. Should the evidence fail to establish the requisite intent, the accused could be found not guilty of desertion but guilty of absence without leave. Likewise, a person charged with murder could be found not guilty of murder but guilty of manslaughter.

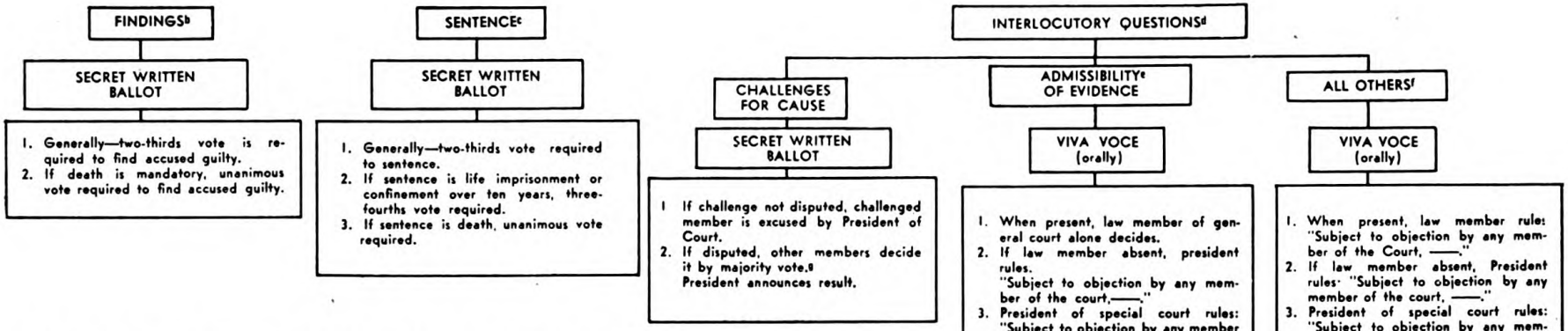
If the accused is found not guilty, he is acquitted. If he is acquitted of all charges and specifications, the acquittal must be immediately announced in open court.

If the accused is found guilty of any charge or specification, the court is reopened, but the findings will not be announced at this time. Instead data concerning the accused is read from the charge sheet. This includes such information as his age, pay, allotments, and previous service. The court is also advised of any previous convictions by courts-martial within a year of the commission of any offense charged. All these facts are admitted to assist the court in determining what sentence it will impose.

### Voting on the Sentence

After the reading of the data regarding the accused and the admission of evidence of previous convictions the court is again closed. It is now ready to determine the sentence. The maximum punishment which may be imposed for each offense of which the accused has been found guilty is limited by the Articles of War or the Table of Maximum Punishments (MCM Page 97). A single sentence

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[a] Court votes in closed session; trial judge advocate, defense counsel, reporter, accused, and spectators excluded.

[b] Court votes separately upon each charge and specification. President determines order in which offenses are voted upon. Vote on specification must precede vote on charge. All fractions are counted in favor of accused; thus, two-thirds of five members requires four to concur. Finding of not guilty results if no finding of guilty is reached. Each member must vote.

[c] Only one sentence is imposed regardless of the number of offenses of which the accused may be found guilty. Court votes on sentence only after accused is found guilty. Each member is required to vote for a proper sentence without regard to his opinion or vote as to guilt or innocence of accused.

[d] An interlocutory question is one arising between commencement and end of trial, other than findings or sentence.

[e] Examples of questions of admissibility of evidence: whether testimony is hearsay, whether evidence is relevant, whether a question is leading.

[f] Examples of other interlocutory questions: continuances, adjournments, recess, motions, order of introducing evidence, insanity of accused, propriety of an argument by T. J. A. or defense counsel.

[g] A tie vote results in the challenge, objection, or other proposal being defeated.

**Figure 4. Court-Martial Voting Chart.**



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will be imposed regardless of the number of offenses of which the accused has been convicted. Then each member writes down the punishment which he deems proper in the present case. These are submitted to the president who arranges them in order of severity. The court next proceeds to vote. The vote is taken first on the least severe sentence, and each member must vote for or against the suggested sentence. Voting on the punishments continues from the least severe to the most severe until the necessary number of votes is obtained.

A graphic representation of how courts-martial determine questions by voting is set forth in Appendix IV.

## PUNISHMENT

### General

Regardless of the particular offenses of which the accused is convicted, courts-martial are limited in their power to impose punishment by statute and by presidential decree. It is perfectly permissible, for instance, for a special court-martial to try a soldier for desertion in time of war; and for this offense the death penalty is authorized, but by statute (Articles of War 12 and 13) special courts-martial may not impose the death penalty nor confinement in excess of six months. A general court-martial trying a soldier for one day's absence without leave could legally impose confinement for life, but a summary court-martial trying the same soldier for the same offense could not impose confinement in excess of one month.

The limitations created by statute in some instances apply as limitations on types of courts-martial regardless of the offenses committed. In addition to these limitations there are in many instances limitations on the power of all courts, and these limitations are established by the statutes which decree particular acts of conduct to be offenses. For example, Article of War 95, entitled "Conduct Unbecoming an Officer and Gentleman" provides that upon conviction of this offense an officer shall be dismissed from the service. Regardless of the seriousness of the crime charged under this article no other punishment can be imposed. This is deemed to be mandatory punishment. Likewise, death is mandatory should a court convict a person as a spy. Most of the punitive Articles of War do not specify a particular punishment which will be imposed. Words such as "shall be punished as a court-martial may direct" are customary; here the punishment is deemed discretionary.

Still other Articles of War provide for mandatory punishment and in addition permit discretionary punishment. Article of War 85, entitled "Drunk on Duty," provides that an officer convicted of this offense in time of war shall be dismissed and shall suffer such other punishment as the court-martial may direct.

The death penalty is a punishment which only the general court-martial may impose. This punishment is authorized only when it is specifically listed as permissible by an Article of War. Articles of War which say simply "shall be punished as the court-martial may direct," and which do not specifically say "death", do not authorize the imposition of the death penalty. A court which imposes the death penalty will specifically state the manner in which death is to be inflicted, for example, "to be hanged by the neck until dead."

No court-martial shall for any offense impose what are deemed "cruel and unusual punishments." A military court may not validly impose carrying a loaded knapsack, wearing of irons, shaving the head, pillory, stocks, and tying up by the thumbs. Customs of the service have long outlawed the imposition of military duties as punishment. Guard duty and drill will not be disgraced by classifying them as punishments. Further, a court-martial may not impose solitary confinement or bread-and-water diet. Actually, a prison officer is authorized to use these latter forms of punishment in disciplining his prisoners, but no court-martial can sentence a convicted soldier to that type of punishment.

### Enlisted Men

In addition to limitations on punishments provided by statute, the 45th Article of War, entitled "Maximum Limits," authorizes the President of the United

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States to prescribe maximum limits of punishment whenever the punishment for a particular offense is left to the discretion of the court-martial. Pursuant to this authority the President has prescribed the Table of Maximum Punishments which is published on page 97 of the Manual for Courts-Martial. This Table of Maximum Punishments applies to enlisted men only. It provides, for instance, that a soldier who appears in an unclean uniform may be punished to the extent of confinement at hard labor for one month and forfeiture of two-thirds of his pay for one month. A soldier in his barracks who sleeps late and fails to appear at reveille, could, according to the Table of Maximum Punishments, be punished by a court-martial no more severely than by forfeiture of one day's pay.

In addition to the Table of Maximum Punishments a court-martial should thoroughly study the Table of Substitutions appearing on page 96 of the Manual. This Table of Substitutions authorizes the court to substitute various forms of punishment where the form of punishment prescribed by the Table of Maximum Punishments is not desirable. A soldier drunk at retreat roll call could receive, according to the Table of Maximum Punishments, forfeiture of pay for twenty days. Should that soldier be a millionaire's son that punishment would hardly impress him nor impose the slightest hardship. It is probable that he would find far more onerous restriction to the company area for 60 days. This would be authorized because according to the Table of Substitutions one day's forfeiture of pay is equal to three days' restriction to limits.

Courts-martial can restrain a soldier's freedom by imposing upon him confinement or restriction. Restriction is imposed generally for offenses which are not too serious. Confinement is imposed generally where restriction is insufficient as punishment, or when it is believed that a soldier must be actually physically restrained or guarded to prevent his breach of restraint. Article of War 42, entitled "Places of Confinement—When Lawful," limits the power of courts-martial to impose confinement in a penitentiary and states that, except for desertion in time of war, repeated desertion in time of peace, and mutiny, no one shall be confined in a penitentiary unless the offense of which he has been convicted is recognized as an offense of a civil nature and so punishable by penitentiary confinement for more than one year by some statute of the federal government, or unless the confinement is imposed by way of commutation of a death sentence. Other places wherein a person may be confined include a United States Disciplinary Barracks, a Federal Reformatory, a Rehabilitation Center, and the Post Stockade. It is not up to the court-martial, however, to determine the place of confinement. That is prescribed by the Secretary of War or the Reviewing Authority of the court.

All courts, in addition to affecting a soldier's freedom, may also affect his pecuniary status. In this regard authorized punishments include forfeitures, detentions, and fines. A forfeiture is equivalent to a reduction in salary; that is, the convicted soldier simply does not receive that amount of his pay which was forfeited by the court. Pay that is detained, however, accrues to the benefit of the accused and he will receive it upon his separation from the service. When a person is fined by a court the situation is similar to that which occurs every day in civil courts, that is, it does not affect his pay, but rather he may take the money from his pocket and satisfy the obligation immediately. Courts-martial may not impose sentences affecting pay to the benefit of anyone. A tavern keeper whose plate glass window was smashed by a drunken soldier may receive some vicarious comfort from seeing the soldier sentenced to forfeit two-thirds of his pay for six months, yet he may not receive any of the pay which was ordered forfeited.

Further limitations on the power of courts-martial to punish soldiers are imposed by the Manual for Courts-Martial and Army Regulations. Both the Manual and Army Regulations prescribe that no court may forfeit or detain more than two-thirds of a soldier's pay in a particular month. A single sentence by any court-martial may not impose detention of pay, hard labor without confinement, or restriction in excess of three months. Confinement and forfeiture of pay extending beyond six months will not be imposed unless a dishonorable discharge is ordered.

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In addition to all other punishments which a court is authorized to impose, it may also order reduction in grade of a private first class or non-commissioned officer. Reduction, however, must be made to the grade of private. There is no such thing as reducing a master sergeant to corporal or a corporal to private first class. Any sentence involving confinement or hard labor without confinement automatically reduces a non-commissioned officer or private first class to the grade of private.

### Officers

It may be noted that limitations prescribed in the Table of Maximum Punishments as well as those applying to the permissible duration of confinement, restriction, and the amount of forfeiture and detention, apply to soldiers only and not to officers or warrant officers. Limitations on the power to punish officers, warrant officers, and aviation cadets are relatively few. An officer can not be reduced in grade, for example, from captain to second lieutenant or to the ranks; and he may not be sentenced to confinement at hard labor unless the sentence includes dismissal, or to hard labor without confinement in any case. Detention of pay is not authorized as a form of punishment for officers. The provision cited earlier that a court could not forfeit more than two-thirds of a soldier's pay in a particular month does not apply to officers. In the case of an enlisted man, unless a dishonorable discharge were adjudged, a forfeiture extending beyond six months would be invalid. This is not true in the punishment of officers and a sentence of forfeiture of $100 per month for 12 months, for instance, would be perfectly legal. Restriction to limits, however, of officers as well as enlisted men may not be imposed in excess of three months.

Loss of rank, loss of promotion, and suspension from rank, command, or duty, are punishments specifically authorized for officers. Loss of rank is effected by sentence providing that the accused be reduced in rank a certain number of files, or that he be reduced in rank to the foot of the list of officers in his grade. This, of course, applies to officers in the regular army. Loss of promotion is accomplished by a sentence directing that the accused be reduced on the promotion list a certain number of files; the sentence may also direct that he be suspended from promotion for a certain length of time after his promotion would otherwise be due. Suspension from rank includes suspension from command. It renders the officer ineligible to serve on a court-martial and deprives him of privileges which accrue to an officer by virtue of his rank. Suspension from command denies the officer the right to exercise military command and deprives him of the right to give orders to his juniors. Suspension from duty is similar to suspension from command and is appropriate in the case of an officer assigned to a purely administrative duty which does not involve the exercise of military command.

## REVIEW OF COURT-MARTIAL RECORDS

### General

There is no provision in the army for an appeal from the judgment of a court-martial, nor is there, as a matter of fact, necessity for such provision. Every case tried by a court-martial is automatically reviewed; no action on the part of the defense or prosecution is required to secure this review. No court-martial is complete until there has been final action by the reviewing authority; until there has been such action there has been no trial. General court-martial proceedings are recorded verbatim by the reporter; the transcript of the proceedings constitutes the record. Normally, special court proceedings are not so detailed; rather the testimony is reported in substance. The only record of a summary court-martial is contained on the back of the charge sheet and the specifications and charges are listed and the pleas and findings noted. A summary court will also indicate the sentence or acquittal and recommendations, if any, on the back of the charge sheet. These records of trial are forwarded to the reviewing authority. The reviewing authority, in all instances, is the officer who appointed the court, or his successor in command. In the case of a trial by general court-martial the record must be referred by the reviewing authority to his staff judge advocate, that is, his legal adviser before final action is taken.

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### Reviewing Authority

The reviewing authority must expressly approve the sentence of the court before it can be executed. He may approve or disapprove the findings of the court as to guilt or innocence, or he may approve a finding of guilty insofar as it involves a finding of a lesser included offense. For example, he might thus reduce desertion to absence without leave, or he may approve or disapprove the whole or any part of the sentence of the court. He may remand the case for rehearing which is in effect a new trial by a different court. If this is done, the accused cannot receive a sentence more severe than the one adjudged at the first trial. This will be done, for example, when the substantial rights of the accused were prejudiced by the admission of improper evidence or by other faulty procedure. He may reduce the sentence; and, he may suspend the sentence. The reviewing authority may not increase the sentence of the court. He may never remand a case for rehearing where the first trial resulted in an acquittal of the defendant. Although an acquittal is reviewed, it requires no approval, and should not be disapproved. However, the reviewing authority, may inform the court of his nonconcurrence in the acquittal and of the reasons for that nonconcurrence.

### Board of Review

In addition to the normal review of a case by the appointing authority, further action is required in the more serious cases. In the office of the Judge Advocate General there is convened a Board of Review which examines the records of trial of these serious cases. This additional review is required in the following instances:

(1) Cases requiring the approval of the President of the United States;
(2) Sentences of dishonorable discharge (not suspended);
(3) Sentences of dismissal (not suspended);
(4) Sentences to confinement in a penitentiary.

### Confirmation by the President

After the records have been examined for legal sufficiency by the Board of Review, confirmation by the President of the United States is required in the following cases:

(1) Cases involving a general officer;
(2) A sentence of dismissal of a cadet;
(3) Sentences extending to the dismissal of an officer (except that in time of war the sentence may be confirmed by the commanding general of an Army in the field or by the commanding general of a territorial department or division, providing the sentence involves an officer below the grade of brigadier general);
(4) Sentences of death.

In time of war, the death sentence may be confirmed by the commanding general of an Army in the field or by the commander of a territorial department or division, provided the sentence was imposed for murder, rape, mutiny, desertion, or spying.

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## APPENDIX I

### Procedure Guide for Summary Court-Martial

Below is a suggested guide to summary court-martial procedure. It incorporates necessary procedural requirements of the general court-martial yet avoids the formalities observed in general courts-martial trials. Deviations from the language of the guide below may be desirable where the accused is of particularly low mentality; repetition may be necessary. When the summary court officer is ready to proceed he will direct the accused to report. Then he will instruct the accused to be seated.

Sum Ct—The Court will come to order.

Sum Ct—Private ——, I have been appointed by paragraph ——, Special Orders No. ——, Headquarters, The Ordnance School, Aberdeen Proving Ground, Maryland, dated ——, as summary court officer. I have received charges against you dated —— which in general charge that you —— (e. g., that you were absent without leave).

*(Note—If the accused is a Tec 5, Cpl, Tec 4, Sgt, Tec 3, or S Sgt and his trial has not been ordered by the general court-martial appointing authority, he should be asked at this point if he consents to trial by summary court. If the accused objects the trial may not proceed).*

Sum Ct—*(To accused.)* You will rise.

*(Accused rises.)*

Sum Ct—Private ——, I will now read the charges and specifications upon which you are about to be tried *(Read charges and specifications verbatim.)*.

Sum Ct—The charges are signed by ——, who appeared before —— on —— and swore that he had personal knowledge of the matters set forth in —— *(or,* that he has investigated the matters set forth in ——) and that they are true to the best of his knowledge and belief.

*(To accused.)* You may be seated.

Sum Ct—*(To accused )* Do you understand the meaning of these charges? *(If the accused gives the slightest indication that he does not fully understand the scope of the charges, carefully explain to him in non-technical language the meaning of each specification.)*

Sum Ct—Private ——, I am now going to ask how you plead to the charges and specifications. Your plea is simply your answer to the charges. But before you plead to these charges and specifications, I am going to explain to you the effect and meaning of the permissible pleas. You may plead, "not guilty," "guilty", or "guilty in part and not guilty in part". If you plead guilty, you admit that you committed the offense charged, that is that —— *(set out the elements of a particular offense charged, e. g., that you were absent without proper authority from 1 June 1944 until 10 June 1944)*. When a plea of guilty is made, no evidence is required and no witnesses need be called; and on the basis of the plea alone, I can impose the maximum punishment. However, even though a plea of guilty is made witnesses will usually be called by me to determine the nature of the offense, or by me at your request to explain or lessen the seriousness of the offense.

A plea of not guilty requires that evidence be introduced to prove beyond a reasonable doubt that you committed the offense charged. This proof would be made by calling witnesses (and when applicable, by depositions, that is, sworn statements of witnesses who are absent; and by stipulations, that is, agreements between us as to the existence of certain facts). You have the right to plead not guilty and require this proof even though you may be guilty. You are not committing perjury or telling a lie in such a case; you are simply exercising your legal right to require proof.

A plea of guilty in part and not guilty in part permits you to admit guilt to part of the offense charged and deny guilt in part. For instance, a soldier charged with drunk and disorderly conduct may plead guilty to being drunk and not guilty to being disorderly. In such a case proof of disorderly conduct only would be required for conviction of drunk and disorderly conduct.



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Sum Ct—Do you understand the meaning of these pleas?
*(Accused will respond.)*
Sum Ct— ————————, how do you plead?
*(Accused)*
TO ————————————
TO ————————————
TO ————————————
TO ————————————
*(Accused will plead separately to each specification and charge. Require the accused to plead first to all the specifications of a particular charge and then to the charge.)*

## EXPLANATION OF PLEA OF GUILTY

*To be made to the accused in event the accused pleads guilty of ANY specification and charge.*

Sum Ct—Private ———— do you fully understand that by pleading guilty you admit that you *(Set out the elements of the offense charged, e.g., that you were absent without proper authority for the period charged)* and that you may be punished to the extent of *(Set out the maximum punishment permissible by (1) The table of Maximum Punishments, MCM p. 97, or (2) Confinement at hard labor for one month, or restriction for 3 months and forfeiture of two-thirds pay for one month; whichever from (1) or (2) above, is less)* Do you fully understand that by pleading guilty you admit having committed all the elements of the offense charged and that you may be punished as stated?
*(Accused will respond.)*
Sum Ct—Do you desire to change your pleas?
*(Accused will respond.)*
Sum Ct—You are advised of your right to introduce evidence in explanation or extenuation of your offense.

Following the pleas evidence will be presented to the court in the presence of the accused and on the basis of this evidence alone the findings should be made. Inadmissible statements contained in the statements of expected testimony should not be considered. The evidence may be adduced in three forms: by requiring witnesses to appear personally, by depositions, and by stipulations.

It is desirable that witnesses be called in order to present a chronological story of the events charged. The proper order can be determined from the statements of expected testimony. All witnesses will be examined in the presence of the accused. After the summary court has completed the examination of a witness called by him he will ask the accused if he desires to question the witness. Upon entering and leaving the court, the witness will salute the summary court officer. When the witness reports, the following preliminaries will be observed after the salute has been rendered.

Sum Ct—*(Sum Ct will rise, witness remains standing, accused remains seated) (To witness.)* Raise your right hand. You swear (or affirm) that the evidence you shall give in the case now in hearing shall be the truth, the whole truth, and nothing but the truth. So help you God. *(Witness will respond.)*
Sum Ct—*(Resumes seat.) (To witness.)* Take your seat. State your name, rank, organization, and station *(or if the witness is a civilian,* your name, occupation, and residence.)
*(Witness will respond.)*
Sum Ct—Do you know the accused?
*(Witness will respond.)*
Sum Ct—To the best of your knowledge and belief, is he in the military service of the United States?
*(Witness will respond. Following this the witness will be examined as to the offense concerning which he has been called to testify.)*

After the summary court has called all witnesses which he feels are necessary and desirable, he should ask the accused if he wishes to call any witnesses.

At some time during the trial after the summary court has summoned all witnesses he intends to call, he will advise the accused of his rights as a witness.

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Advice to the accused will be given in the following manner:

Sum Ct— ———— you are advised that you have three rights as a witness. First, you have the right to remain silent. An accused person may not be required to testify in his own case, and I may not comment on your silence as an indication of guilt.

Second, you may testify as a witness under oath in which case you swear to me that you will tell the truth. If you do this however, you subject yourself to questioning by me on the entire scope of the offense (or offenses) concerning which you desire to testify.

Third, you have the right to submit a statement not under oath, on which you may not be questioned. This statement may be made by you orally or in writing. This statement is not evidence and I will give such weight to it as I deem appropriate in this case.

Sum Ct—Do you understand these rights?

*(Accused will respond)*

Sum Ct—Which of these rights do you wish to exercise?

*(Accused will respond)*

After the accused has completed his sworn testimony or offered his unsworn statement or indicated his desire to remain silent, the summary court will ask the accused if he has anything further to add. If the accused has nothing further to add and if the summary court is satisfied that no additional evidence is necessary or desirable he will then arrive at his findings. Permissible findings are the same as the permissible pleas indicated earlier.

If the evidence does not specifically support the offense charged yet does establish a lesser included offense, the summary court may make the findings conform to the evidence by exceptions and substitutions, that is, excepting the words not proved and substituting the words which have been proved. Listed below is a specification charging a soldier with violating the 65th Article of War by striking a non-commissioned officer who was in the execution of his office. Should the evidence indicate that the non-commissioned officer was not in execution of his office but that otherwise an offense had been committed, a finding under Article of War 96 would be appropriate. For example:

CHARGE: Violation of the 65th Article of War.

SPECIFICATION: In that Private JOHN J. SMITH, 11th Provisional Ordnance training company, did, at Aberdeen Proving Ground, Maryland on or about 12 July 1944, strike Corporal Harry E. Jones, 40th Ordnance Company, a non-commissioned officer, with a broom, while said Corporal Harry E. Jones was in the execution of his office.

## FINDINGS

Of the Specification of the Charge: Guilty, except the words, "while said Corporal Harry E. Jones was in the execution of his office," of the excepted words, not guilty, of the remaining words, guilty.

Of the Charge: Not guilty, but guilty of a violation of the 96th Article of War.

It is not necessary to close the court to make the findings, but should the summary court desire to spend some time evaluating the evidence and studying the available sources of law, he might recess the court until he has reached his decision. When he has arrived at the findings he will if he has determined that the accused is not guilty of all specifications and charges immediately announce the findings as follows:

## ANNOUNCING ACQUITTAL

Sum Ct—"————, I find you not guilty of all specifications and charges and acquit you."

If the summary court has determined that the accused is guilty of any specification and charge he will proceed as follows:

Sum Ct—I have a certificate indicating that there is evidence of ———— previous conviction of you by courts-martial. *(Summary court will read certificate of previous convictions or of no previous convictions. The certificate must relate to convictions which occurred within one year of any offense*

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*presently charged; but periods of absence of which the accused has been convicted as established by the certificate of previous convictions may be deducted in computing the one year period.)*

Sum Ct—Is the certificate correct?

*(Accused will respond.)*

Sum Ct—I am now going to read you the personal data from the charge sheet.

Name of accused ————————

Age ————————

Pay ————————

Allotment to dependents ————————

Government Insurance Deduction ————————

Data as to service ————————

Data as to restraint ————————

Sum Ct—Is this correct?

*(Accused will respond.)*

The next step is to determine the sentence. The following punishments may validly be imposed by summary court:

1. *Admonition*
2. *Reprimand*
3. *Confinement*—Not to exceed one month.
4. *Hard Labor* without confinement—Not to exceed three months.
5. *Restriction*—Not to exceed three months.
6. *Forfeiture*—Not to exceed two-thirds of one month's pay.
7. *Detention*—Not to exceed two-thirds of one month's pay.
8. *Fine*—A fine is a valid form of punishment and is expressly recognized as a form of punishment under Article of War 80 entitled "Dealing in Captured or Abandoned Property," and Article of War 94 entitled, "Frauds against the Government."
9. *Reduction*—If reduced at all the accused must be reduced to the grade of private; further, any sentence of confinement or hard labor without confinement automatically reduces the accused to private.

These punishments are authorized unless the court is limited by the Table of Maximum Punishments (MCM page 97). The Table of Maximum Punishments establishes definite limitations on the power of courts to punish for certain specified offenses. For example, a soldier found drunk at reveille, a violation of the 85th Article of War could receive five days forfeiture of pay and no more, regardless of how drunk he was. Along with the Table of Maximum Punishments should be considered the Table of Substitutions (MCM page 96). The Table of Substitutions provides that there can be substituted for five days forfeiture of pay for instance, five days confinement at hard labor or fifteen days restriction. Substitutions can not be made which have the effect of extending the power of the court to impose a specified form of punishment, for example; if the court were authorized by the Table of Maximum Punishments to impose one month's confinement and forfeiture of two-thirds of one month's pay, a summary court could not substitute and give the accused one month and twenty days of confinement inasmuch as a summary court can not in any case impose more than one month's confinement.

Several forms of punishment may be imposed in a single sentence. Reduction, admonition, and reprimand may be imposed without regard to any other form of punishment. Restriction, confinement, and hard labor without confinement, may not be imposed in a single sentence unless they are apportioned. It is permissible, for example to give one-third of the authorized restriction (one month), and two-thirds of the authorized confinement (twenty days). Detention and foreiture may also be imposed in a single sentence only if they are apportioned. A sentence affecting pay applies to base pay and longevity pay and may not exceed two-thirds of the total of these. In determining the maximum amount which he may forfeit or detain the summary court may disregard allotments to dependents, for insurance, or for other authorized purposes except Class F deductions. If the accused has a Class F deduction, the amount of the deduction will first be subtracted from the base and longevity pay of the soldier; the court is then authorized to impose a sentence depriving the accused of two-thirds of the remainder. Appendix 9 contains forms of sentences which should be adhered to. A combination of sev-



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eral of these forms is permissible. The following is a proper sentence by summary court-martial:

"To be reduced to the grade of private, to be confined at hard labor for one month and to forfeit thirty dollars of your pay."

After the sentence has been determined the summary court officer will instruct the accused to rise.

Sum Ct—This court finds you
OF Specification 1 of Charge I:
OF ———————————— —
OF (President will announce finding on
OF each specification and charge
or, "Of all Specifications and Charges: Guilty.)
and sentences you to ————————————."

The summary court will explain to the accused the effect of the findings and sentence. For example, if restriction has been imposed he will clearly indicate the limits of the restriction. If confinement of one month has been imposed, he will advise him that his sentence of confinement will be lessened by five days provided his conduct while he is in confinement is good.

Following the trial the summary court will immediately notify his appointing authority of the result of trial. In addition he will, if restraint has been imposed, make certain that the commanding officer of the accused is advised of the restraint. If no guard accompanied the accused to the trial it is generally wise to call the organization of the accused in case confinement was adjudged and request that a guard be dispatched to accompany the accused back to his organization pending his actual confinement.

The summary court will also complete page 4 of the charge sheet. This page constitutes the only record of a trial by summary court-martial. Under the heading "Specifications and Charges" he will list by number each specification and each charge. Pleas to each of these and the findings of each will be listed separately. In the event that the pleas and findings to all specifications and charges are the same, the specifications and charges need not be listed separately. For example:

| SPECIFICATIONS AND CHARGES | PLEAS | FINDINGS |
|---|---|---|
| To all Specifications and Charges | Guilty | Guilty |

The sentence exactly as imposed will also be listed on the charge sheet. This sentence should conform to the forms for sentences contained in Appendix 9 of the Manual. In addition, it is desirable that there appear beneath the sentence a remark indicating the number of previous convictions considered, or that no previous convictions were considered. If the accused is above the rank of private first class the record should specifically state that he did not object to trial by summary court, or that trial by summary court was ordered by the general court-martial appointing authority. The completed charge sheet and allied papers will be returned to the appointing authority immediately after the trial.

## APPENDIX II

### Procedure Guide for Special Court-Martial

There are published commercially, a number of guides for General Court-martial but there is little positive guide to the Special Court-Martial concerning the formality of its proceedings. It is desirable, however, that Special Courts-Martial should adhere to the procedure prescribed for General Courts-Martial as far as is practicable. The following Guide is designed to assist Special Courts-Martial personnel in the conduct of trials. The formalities of General Courts-Martial procedure are eliminated only when they are not applicable or desirable.

Pres: The court will come to order.

TJA: If the court pleases, the prosecution is ready to proceed with the trial of the UNITED STATES against

———————————————————

(Name) (Grade) (Organization)

*(Accused and defense rise and remain standing until counsel has been announced.)*

TJA: The accused is present, together with the regularly appointed defense counsel and assistant defense counsel.

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TJA: Whom does the accused desire to introduce as defense counsel?
DC: The regularly appointed counsel. *(Or other counsel).*
TJA: Does the accused wish to introduce individual counsel?
DC: The accused does not *(Or introduces ————).*
TJA: The court is appointed by paragraph ————, Special Orders No. ————, Headquarters, The Ordnance School, Aberdeen Proving Ground, Maryland, dated ————.
TJA: The following members of the court are present:

*(Accused and personnel of prosecution and defense stand during announcement of members).*

TJA: Absent:
————*(State reason for absence).*
TJA: The general nature of the charges in this case is
*(e.g. absence without leave, insubordination)*
————
TJA: The charges were preferred by
————
were investigated by
————
and were forwarded by
————
TJA: No member of the court will be a witness for the prosecution.
TJA: The records in this case disclose no grounds for challenge.
*(Or grounds for challenge against ————).*
TJA: If any member of the court is aware of any facts which he believes to be grounds for challenge by either side against any member, it is requested that he state such facts.
*(Member may be excused by President and withdraw.)*

*Any member of the court including the president, may be challenged for cause or peremptorily. Should the president be successfully challenged he will withdraw and the next ranking officer automatically becomes president. On a challenge for cause, witnesses including the member against whom the challenge is offered may be called by the prosecution, the defense, and the court to testify under oath concerning the challenge.*

*(See attached chart on voting.)*

TJA: The prosecution has no challenges for cause. *(Or offers challenge for cause against ————).*
TJA: The prosecution has no peremptory challenges. *(Or peremptorily challenges ————).*
TJA: Does the accused desire to challenge any member of the court for cause?
DC: The accused does not. *(Or challenges for cause ————.)*
TJA: Does the accused wish to exercise his right to one peremptory challenge against any member?
DC: The accused does not. *(Or challenges peremptorily ————.)*
TJA: Does the accused object to any member of the court as now constituted?
DC: The accused does not.
TJA: The court will be sworn. *(everyone will rise.)* "You, *(TJA lists members of court who are present, in order of rank)* do swear (or affirm) that you will well and truly try and determine, according to the evidence, the matter now before you, between the United States of America and the person to be tried, and that you will duly administer justice, without partiality, favor, or affection, according to the provisions of the rules and articles for the government of the armies of the United States, and if any doubt should arise, not explained by said articles, then according to your conscience, the best of your understanding, and the custom of war in like cases; and you do further swear (or affirm) that you will not divulge the findings or sentence of the court until they shall be published by the proper authority or duly announced by the court, except to the trial judge advocate and assistant trial judge advocate; neither will you disclose or discover the vote or opinion of any particular member of the court-martial upon a challenge or upon the findings or sentence, unless required to give evidence thereof as a witness by a court of justice in due course of law. So help you God."

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Court: I do.

Pres: The prosecution will be sworn "You, *(Pres. reads the names of TJA and assistant TJA)* do swear (or affirm) that you will faithfully and impartially perform the duties of a trial judge advocate and will not divulge the findings or sentence of the court to any but the proper authority until they shall be duly disclosed. So help you God."

*(Court members and spectators resume seats. Trial Judge Advocate, accused and defense counsel remain standing.)*

TJA: ————————, I will now read the charges and specifications upon
(Accused)
which you are about to be tried: *(Read charges, specifications, and name of accuser from the Charge Sheet.)*

TJA: The affidavit and 1st Indorsement are in order.

TJA: Charges were served on the accused on ————————
Date

TJA: Before pleading to the general issue, does the accused desire to introduce any special pleas at this time? *(If any, these will be disposed of).*

TJA: ————————, how do you plead?
(Accused)
TO Specification 1 of Charge 1
TO *(accused will plead separately to each specification and charge as it is read)*
TO

## EXPLANATION OF PLEA OF GUILTY

*To be made to the accused in event the accused pleads guilty of ANY specification and charge.*

Pres: Private ———————— do you fully understand that by pleading guilty you admit that you *(Set out the elements of the offense charged, e.g., that you were absent without proper authority for the period charged)* and that you may be punished to the extent of *(Set out the maximum punishment permissible by the Table of Maximum Punishments, MCM p. 97, or six months confinement at hard labor and forfeiture of two-thirds pay per month for six months whichever is less.)*
Do you fully understand that by pleading guilty you admit having committed all the elements of the offsense charged and that you may be punished as stated? *(Accused will respond.)*

Pres: Confer with your counsel and determine if you desire to change your pleas. *(Accused and counsel confer.)*

DC: The accused does not desire to change his pleas.
*(desires to enter a plea of not guilty.)*

Pres: You are advised of your right to introduce evidence in explanation of extenuation of your offense.

TJA: Does the court desire any portion of the Manual for Courts-Martial or other publication read?

Pres: The court does not *(or desires to have read ————————.)*

TJA: The prosecution desires *(or does not desire)* to make an opening statement.

TJA: The prosecution calls as its first witness: ————————.
*(Witness is called, enters, faces president and salutes, turns to TJA, raises right hand, and is sworn.)*

TJA: "You swear that the evidence you shall give in the case now in hearing shall be the truth, the whole truth, and nothing but the truth. So help you God."
*(Witness responds)*

TJA: State your name, grade, organization, and station.
*(Witness responds)*

TJA: Do you know the accused?
*(Witness responds)*

TJA: To the best of your knowledge and belief is he in the military service of the United States?
*(Witness responds)*

*All witnesses will be instructed by the trial judge advocate before appearing*

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*in the court concerning the proper manner of reporting to the court. The witness will be instructed that upon entering the court, he will go by the most direct route to the front of the president; that he will salute the president and then face the trial judge advocate in order to be sworn; that he will remain seated during the examination of the witness; that he will address his answers to the court; and that when he is excused, he will rise, salute the president and leave.*

*Examination of witnesses should proceed as follows: direct examination, cross examination, redirect examination, recross examination, and examination by the court.*

*All objections and motions should be made to the president of the court who will rule as follows "Subject to the objection of any member of the court, the objection is sustained (or overruled)." If anyone objects, the court should be cleared and closed and the objection or motion voted on by oral vote, junior member voting first. Whenever the president desires he may close the court and require a vote.*

*Arguments on motions or objections should be permitted as follows: argument of party offering objection or motion; argument of opposition; rebuttal argument.*

*The defense will present no witnesses until the prosecution has rested. After the defense rests, the prosecution may submit rebuttal witnesses; after which the defense may submit rebuttal witnesses. The court may then call new witnesses or recall any witnesses previously called.*

*At some time during the presentation of the case for the defense, the president of the court will advise the accused of his rights as a witness. This will normally be done when the defense counsel requests it, but should be done even though no request is made.*

*Advice to the accused will be given in the following manner:*

———————— you are advised that you have three rights as a witness..
(Accused)

First, you have the right to remain silent. An accused person may not be required to testify in his own case, and the prosecution and members of the court may not comment on your silence as an indication of guilt.

Second, you may testify as a witness under oath in which case you will come before the court and swear to tell the truth. If you do this, however, you subject yourself to questioning by the prosecution and the court on the entire scope of the offense (or offenses) concerning which you testified on the direct examination by your defense counsel.

Third, you have the right to submit a statement not under oath, on which you may not be questioned. This statement may be made by you personally or by your defense counsel for you. It may be made orally or in writing This statement is not evidence and the court will give such weight to it as it deems appropriate in this case.

Do you understand these rights?

*(Accused responds)*

Pres: Consult with your defense counsel and determine which of your rights you wish to exercise.

DC: The accused desires to testify under oath *(Or remain silent or submit an unsworn statement)*

*After both sides have finally rested, the trial will proceed as follows:*

Pres: Has the prosecution anything further to offer?

TJA: It has not.

Pres: Has the defense anything further to offer?

DC: It has not.

Pres: The court will be closed.

*The court will then proceed to vote on the findings. (See attached chart on voting.)*

*If the evidence does not specifically support the offense charged, yet does establish an included offense, the court may make the findings conform to the evidence by exceptions and substitutions, that is excepting the words not proved and substituting the words which are proved. For example, the court may find a soldier charged with larceny not guilty of larceny, a violation of AW 93, but guilty of wrongful taking under AW 96. Likewise, the court may find the accused not guilty of larceny on 1 January but guilty of larceny on 2 January.*

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*If the accused is acquitted of all specifications and charges, the court will be opened and the president will advise the accused to come forward. The accused and his counsel then go toward the center of the court and stand facing the president.*

*ANNOUNCING ACQUITTAL*

Pres: "————————, the court finds you not guilty of all specifications and
(Accused)
charges and acquits you."

*If the accused is convicted of any specification and charge, the court will be opened and the personnel of the prosecution and defense will resume their seats.*

Pres: The court is open. Has the prosecution any evidence of previous convictions by courts-martial?

TJA: *(Reads certificate of previous conviction or of no previous conviction. Evidence of previous convictions must relate to offenses committed within one year of the commission of any offense presently charged. In computing the one year, deduct all periods of unauthorized absence established in the certificates of previous convictions or by the present conviction)*

TJA: *(To accused)* Is this correct?

DC: The certificate is correct *(or is incorrect or improper because* ————————————————).

Pres: The trial judge advocate will read the data pertaining to the accused from the charge sheet.

TJA: Name of accused ————————————————
Age ————————
Pay ————————
Allotment to dependents ————————
Government Insurance Deduction ————————
Data as to service ————————————
Data as to restraint ————————

TJA: Is this correct?

DC: The data is correct *(or is incorrect because* ————————————————).

Pres: The court will be closed.

*The court is now prepared to vote on the sentence. The president may permit discussion on the sentence before voting. Each member will write on a piece of paper the sentence he believes proper. These will be arranged in order of severity and the court will vote first on the least severe, continuing to vote twoard the most severe until a two-thirds vote is secured.*

*Remember:*

*I. A single sentence may not impose:*
- *a. More than 3 months restriction.*
- *b. More than 3 months hard labor without confinement. (Hard labor without Confinement is a form of punishment whereby the accused is not under guard but is simply required to perform additional labor. Confinement on the other hand includes restraint under guard, normally in the stockade.)*
- *c. Detention affecting more than 3 months pay.*

*II. Any sentence of confinement or hard labor without confinement automatically reduces a non-commissioned officer and private first class.*

*III. Forfeitures and detentions are based on base pay plus longevity pay. Where the accused has a Class F Deduction, subtract that from the base pay before computing the two-thirds which the court can forfeit.*

*IV. It is the policy of the War Department that sentences of confinement will be accompanied by sentences of forfeiture or detention of pay for at least the duration of the confinement unless it be shown that forfeiture or detention will impose undue hardship.*

*After the sentence has been determined, the junior member will explain that the court is open. The accused and his counsel will go forward and stand in front of the president, and the court will proceed as follows:*

Pres: The court is open.

Pres: ————————, the court in closed session and upon secret written
(Accused)
ballot, two-thirds of the members present at the time the vote was taken concurring in each finding of guilty finds you

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Specification 1 of Charge I:
Of ———————————
Of ———————————
*(President will announce finding*
Of ———————————
*on each specification and charge*
Of ———————————
*or, "Of all Specifications and Charges: Guilty )*

Pres: And again in closed session and by secret written ballot, two-thirds of the members present at the time the vote was taken concurring, sentences you to ———————————.

Pres: Has the prosecution anything further?

TJA: The prosecution has nothing further *(or is prepared to proceed with the case of* ———————————.)

Pres: The court will adjourn to meet again at my call *(or will proceed.)*

## APPENDIX III

### Suggested Form for Special Court-Martial Record

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PRIVATE FIRST CLASS JOHN M. DOE, 33 064 675, 10TH PROVISIONAL ORDNANCE TRAINING COMPANY, ABERDEEN PROVING GROUND, MARYLAND
SPECIAL COURT-MARTIAL
ABERDEEN PROVING GROUND, MARYLAND
12 AUGUST 1943 *

---

TESTIMONY

Names of Witnesses:

*Against the Accused:*

First Sergeant Orrie R. Flight, 10th Provisional Ordnance Training Company, Aberdeen Proving Ground, Maryland.

*For the Accused:*

The accused, Private First Class John M. Doe, 10th Provisional Ordnance Training Company, Aberdeen Proving Ground, Maryland.

EXHIBITS

"A"—Orders appointing the Court
"B"—Charge Sheet
"C"—Stipulation of expected testimony of Captain Robert Smith
"D"—Extract Copy of Morning Report, 10th Provisional Ordnance Training Company
"E"—Certificate of one Previous Conviction by Court-Martial *

---

PROCEEDINGS IN THE TRIAL OF PRIVATE FIRST CLASS JOHN M. DOE, 33 064 675, 10TH PROVISIONAL ORDNANCE TRAINING COMPANY, ABERDEEN PROVING GROUND, MARYLAND, BY THE SPECIAL COURT- MARTIAL APPOINTED BY PARAGRAPH 31, SPECIAL ORDERS NO. 88, HEADQUARTERS, THE ORDNANCE SCHOOL, ABERDEEN PROVING GROUND, MARYLAND, DATED 13 APRIL 1943, AS AMENDED BY PARAGRAPH 7, SPECIAL ORDER NO. 116, HEADQUARTERS, THE ORDNANCE SCHOOL, ABERDEEN PROVING GROUND, MARYLAND, DATED 15 MAY 1943 A COPY OF EACH ORDER BEING APPENDED HEREWITH AS EXHIBIT "A."

Aberdeen Proving Ground, Maryland,
12 August 1943.

The court met at 1430, all of the personnel of the court being present except: 1st Lt. John M. Wright (transferred from the post).

* The material contained between the rules should appear separately on a page by itself.

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The accused was present together with the regularly appointed defense counsel and the regularly appointed assistant defense counsel. The accused stated that he did not desire other counsel.

The prosecution then stated that the accused was charged with violating the 96th and 61st Articles of War; that the charges were preferred by Captain James E. Carruthers; that the case was referred to the court by Colonel Thomas D. Blake; that no member of the court would be a witness for the prosecution.

No member of the Court was aware of any facts constituting grounds for challenge.

Neither the prosecution nor the defense desired to challenge any member of the court for cause. The prosecution did not desire to challenge any member of the court peremptorily.

The following member of the court was excused for the reason opposite his name:

Captain John Lawton (excused upon peremptory challenge by the defense)

The accused, having been extended the opportunity to challenge, stated that he did not object to the court as thus constituted. Thereupon the members of the court and the personnel of the prosecution were sworn.

The accused was then arraigned on the charges and specifications indicated on the Charge Sheet which is appended herewith as Exhibit "B."

The accused had no special pleas to introduce.

The accused then pleaded as follows:

To Specification 1, Charge I: Not guilty
To Specification 2, Charge I: Guilty
To Charge I: Guilty
To the Specification of Charge II: Guilty
To Charge II: Guilty

At the request of the trial judge advocate, the president of the court explained to the accused the effect of the pleas of guilty. After consultation with his counsel, the accused stated he did not desire to change his pleas.

The trial judge advocate did not desire to make an opening statement.

First Sergeant Orrie R. Flight, 10th Provisional Ordnance Training Company, Aberdeen Proving Ground, Maryland, a witness for the prosecution was sworn and testified, in substance, as follows:

DIRECT EXAMINATION
(Summary of testimony)

CROSS EXAMINATION
(Summary of testimony)

REDIRECT EXAMINATION
(Summary of testimony)

RECROSS EXAMINATION
(Summary of testimony)

EXAMINATION BY THE COURT
(Summary of testimony)

The witness was excused and withdrew.

The prosecution offered in evidence a stipulation of the expected testimony of Captain Robert Smith, Commanding Officer, 10th Provisional Ordnance Training Company, Aberdeen Proving Ground, Maryland.

The stipulation was admitted in evidence and read to the court and is appended herewith as Exhibit "C."

The prosecution rested.

The defense did not desire to make an opening statement.

The accused indicated a desire to testify as a witness under oath. At the request of the defense counsel, the president explained to the accused the rights of the accused as a witness. After consultation with his counsel, the accused still desired to testify under oath.

The accused, Private First Class John M. Doe, 10th Provisional Ordnance Training Company, Aberdeen Proving Ground, Maryland, a witness for the defense, was sworn and testified, in substance, as follows,

DIRECT EXAMINATION
(Summary of testimony)

CROSS EXAMINATION
(Summary of testimony)

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The witness was excused and resumed his seat in the court room.
The defense rested.
The prosecution and the defense made closing arguments.
Neither the prosecution nor the defense having anything further to offer, the court was closed and upon secret written ballot, two-thirds of the members present at the time the vote was taken concurring in each finding of guilty finds the accused:

Of Specification 1, Charge I: Not Guilty
Of Specification 2, Charge I: Guilty
Of Charge I: Guilty
Of the Specification of Charge II: Guilty
Of Charge II: Guilty

The court was opened and the trial judge advocate stated in the presence of the accused and his counsel, that there was evidence of one previous conviction of the accused by court-martial. The certificate of one previous conviction by court-martial was admitted in evidence, read to the court and is appended herewith as Exhibit "D".
The trial judge advocate read the data as to age, pay and service as shown on the charge sheet as follows:

Age: 22 years.
Pay: $54.00 per month.
Allotments to dependents: None per month.
Government Insurance deduction: $3.30 per month.
Prior Service: None.
Current Induction: Inducted into Federal Service, 13 February 1943, and transferred to Enlisted Reserve Corps; Reported for active duty on 22 February 1943.
Restraint: In arrest in quarters since 1700, 9 August 1943.

The accused stated he had no objection to offer concerning evidence of previous conviction and data as to age, pay, service and restraint.
The court was closed and upon secret written ballot, two-thirds of the members present at the time the vote was taken concurring, sentences the accused to be reduced to the grade of private, to be confined at hard labor for three (3) months and to forfeit thirty ($30.00) dollars of his pay per month for a like period.
The court was opened and the president announced the findings and sentence.
The court then, at 1520, 12 August 1943, adjourned to meet again at the call of the president.

I have read the foregoing record of trial and find it correct to the best of my knowledge.

(Signed) LEWIS B. LONG,
Major, Ord Dept, President.
(Signed) SAMUEL L. KANE,
1st Lt, Ord Dept, Defense Counsel.
(Signed) DAVID S. BLUE,
1st Lt, Ord Dept, Trial Judge Advocate.

## APPENDIX IV

### Suggested Arrangement By Trial Judge Advocate of Record of General Court-Martial Trial and Allied Papers

(After the reporter has completed his transcript of the testimony and has recorded the proceedings of the trial on Record of Trial by General Court-Martial (W.D. A.G.O. Form No. 114), he will present the record to the trial judge advocate. The trial judge advocate will read the record carefully to determine that there are no errors. If any errors are noted, he will correct them and initial the corrections. All erasures will likewise be initialled. He will submit the record to the defense counsel who will read the record and sign it. Then the record will be presented to the president of the court, or in his absence, to the next ranking member of the court, for his authentication. The trial judge advocate will then sign the record himself. The record, together with all allied papers which are in the hands of the trial judge advocate, will be submitted to the appointing authority of the court or to the staff judge advocate of the appointing authority.)

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The papers will be bound together and will be arranged in the following order:

1. Letter of transmittal forwarding the record and allied papers to the headquarters exercising general court-martial jurisdiction (through the staff judge advocate).
2. General Court-Martial Data Sheet (W.D. A.G.O. Form No. 116).
3. Charge Sheet (Original).
4. Recommendation for trial by general court-martial by post commander and allied papers thereto.
5. Pretrial Investigating Officer's Report (W.D. A.G.O. Form No. 120), followed by original copies of papers which accompanied the charges when referred for trial, unless otherwise properly disposed of.
6. Special instructions to trial judge advocate, if any (original).
7. Pretrial Report of staff judge advocate (original).
8. Copy of reporter's voucher, if reporter is enlisted man or civilian not employed by War Department (par 86 b, MCM, 1928).

   or

   If a civilian employee of the War Department was used as reporter, a certificate by the trial judge advocate that the reporter is regularly employed as a civilian employee of the Federal Government, and that he was the reporter in the present case.
9. Copies of record of trial not otherwise disposed of (in case accused did not desire copy). (Par. 85 b, MCM, 1928.)
10. Record of former hearing in case of rehearing.
11. Record of trial proper, in the following order:
    Index sheet.
    Receipt of accused for copy if he desired a copy (this is to be found on the back of the index page of W. D. A.G.O. Form No. 114).
    Special Order appointing court (and amending orders, if any).
    Order appointing reporter, signed by president of the court.
    Record of trial proceedings (original).
    Exhibits, properly marked.
12. Clemency papers, if any (par. 81 MCM, 1928).
13. Chronology Sheet (This is the back cover page of W.D. A.G.O. Form No. 114. It will not be filled out by the trial judge advocate).

## APPENDIX V

### Model Stipulation

Aberdeen Proving Ground, Maryland,
15 August 1944.

United States
vs.
Private John M. Doe, 33064675
10th Provisional Ordnance Training Company
Aberdeen Proving Ground, Maryland

STIPULATION

It is stipulated between the accused and his counsel and the trial judge advocate that if Captain Robert Smith, Commanding Officer, 10th Provisional Ordnance Training Company, were present in court he would testify under oath, in substance, as follows:

1. That on 10 August 1944 he was commanding officer of the 10th Provisional Ordnance Training Company, Aberdeen Proving Ground, Maryland.

2. That Private John M. Doe was a member of the 10th Provisional Ordnance Training Company on 10 August 1944.

3. That he did not give Private John M. Doe permission to be absent from the post on 10 August 1944

(Signed) JOHN M. DOE, 33064675,
Pvt, 10th POTC, APG, Md.
(Signed) HARRISON N. SCOTT,
Maj, Ord Dept, Defense Counsel.

(Signed) THOMAS L. CALHOUN,
Maj, Ord Dept, Trial Judge Advocate.

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## APPENDIX VI

### Explanation of the Articles of War

General:

Article of War 110 requires that certain Articles must be read and explained to every soldier at the time of his enlistment or within six days thereafter. Article of War 110 is entitled "Certain Articles to be Read and Explained."* The most important word of the title and the one most frequently overlooked is the word "explained." Many commanding officers seek to fulfill the requirements of this article by haphazard reading accompanied by no explanation whatsoever. Others detail the onerous task to the junior officers in their commands, who regard it in the same light as all other such additional details which fall to their lot. Still other officers pass off the job to an enlisted man in the organization and do not bother even to attend the reading in order to answer any questions which might arise. All these practices are reprehensible.

Before an officer undertakes the reading of the Articles he should thoroughly acquaint himself with their meaning. Certainly, if he does not know what constitutes the specific offenses denounced in them, he is unfit to explain their meaning to his men. Many enlisted men probably feel that the Articles say nothing at all but simply repeat again and again "shall be punished as a court-martial may direct." They regard the Articles as a threat and feel that this is the purpose of their being read, because officers usually fail to point out to them the many instances in which the Articles are designed to protect enlisted men.

Specific steps to prepare oneself to explain the Articles include reading the Articles and studying the Manual for Courts-Martial. Chapter 26 of the Manual contains in many instances a very complete description of the offenses set out in the particular article. The reading of the Articles to the men is greatly enhanced by the use of actual examples of violations and punishments. Any officer who has been in the army for even a short period of time must surely have observed the system of military justice in operation and a recitation of his observations pertaining to specific articles substantially enlivens the discussion.

Training Film 11-235 entitled "Articles of War" provides an interesting discussion of many of the Articles which are required to be read. It is wise to supplement a discussion of the Articles of War with a viewing of the film. The film, however, does not replace the reading and explanation. A verbatim reading of the required Articles is necessary in all instances.

Article 1. *Definitions.*

Article 2. See section entitled "Persons Subject to Military Law," supra.

Article 28. *Certain Acts to Constitute Desertion.*

This Article is not required by Article 110 to be read. Because of its importance, however, it should be discussed along with Article of War 58 entitled "Desertion." A person, for instance, who absents himself without leave for even less than a week might be convicted of desertion if his absence was accompanied with an intent to avoid hazardous duty or shirk important service. A soldier who has not been discharged and who reenlists in the military or naval service of the United States or a foreign country likewise is guilty of desertion.

Articles 29. *Court to Announce Action*

Whenever an accused has been acquitted of all charges against him, the acquittal will be immediately announced in open court.

Article 54. *Fraudulent Enlistment.*

Fraudulent enlistment is committed where a soldier procures himself to be enlisted in the military service by concealing an important fact concerning his qualifications. For the offense to be complete it is necessary that the soldier receive some pay or allowance under the enlistment. The matter which has been concealed must have been an important one and one which had it been known would have resulted in the soldier's rejection. A person who does not like his middle name and who in enlisting stated that he had no middle name is not guilty of fraudulent enlistment as the concealment was not an important fact.

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* Articles required to be read: Articles 1, 2, 29, 54 to 96, inclusive, and 104 to 109, inclusive.

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Article 55. *Officer Making Unlawful Enlistment.*

Article 56. *False Muster.*

The proceeding of muster is defined as the assembling, inspecting, entering upon the formal rolls, and officially reporting as a component part of the command all persons or public animals (Winthrop's Military Law and Precedents). Hence, any false information in respect thereto intentionally entered is 'False Muster' under this article.

Article 57. *False Returns—Omission to Render Returns.*

This Article applies only to officers whose duty it is to render to the War Department, reports on the state of the troops or of the arms, ammunition, and other property of the command.

Article 58. *Desertion.*

Desertion is normally absence without leave plus the intent never to return to the army. It may also be absence plus the intent to return at an indefinite date in the future. See also the discussion of Article of War 28.

Article 59. *Advising or Aiding Another to Desert.*

To advise, persuade, or assist another to desert is as serious as desertion itself and in time of war is punishable by death.

Article 60. *Entertaining a Deserter.*

This article applies to officers only. Entertaining a deserter consists in an officer retaining a soldier in his command after having discovered that the soldier is a deserter.

Article 61. *Absence Without Leave.*

The Article provides that it shall be an offense for a person subject to military law, through his own neglect, to fail to be at the place where he is supposed to be at the time he is supposed to be there. The Article contemplates two types of absence: absence from the organization and absence from place of duty. A person who absents himself from his organization subjects himself to life imprisonment regardless of how short the duration of absence. Failing to repair, on the other hand, is committed when a soldier is present with the organization but is not at the particular place in the organization where he is supposed to be. For example, a soldier who sleeps late in his barracks and fails to report for reveille is guilty of failure to repair, even though he is present in the organization. This offense is less serious than absence without leave from the organization.

Article 62. *Disrespect Toward the President, Vice President, Congress, Secretary of War, Governors, Legislatures.*

It is no offense for a soldier to retain his political convictions. It is an offense for him to express his opinions concerning the persons listed in the title of the Article in a disrespectful manner.

Article 63. *Disrespect Toward Superior Officer.*

This Article includes not only breaches of discipline such as using violent or obscene language toward a superior officer but also includes indifference, insolence and undue familiarity.

Article 64. *Assaulting or Wilfully Disobeying Superior Officer.*

Article 65. *Insubordinate Conduct Toward Noncommissioned Officer.*

Article 66. *Mutiny or Sedition.*

Mutiny is collective insubordination by two or more persons in resistance to military authority. Sedition is similar defiance of authority directed against civil authority.

Article 67. *Failure to Suppress Mutiny or Sedition.*

Article 68. *Quarrels; Frays; Disorders.*

Article 69. *Arrest or Confinement.*

Article 70. *Charges: Action Upon.*

Article 71. *Refusal to Receive and Keep Prisoners.*

Article 72. *Report of Prisoners Received.*

Article 73. *Releasing Prisoner Without Proper Authority.*

Article 74. *Delivery of Offenders to Civil Authorities.*

In time of peace persons subject to military law accused of an offense against the laws of a particular state, must upon request of the authorities

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of that state be delivered unless the person is being held by military authorities for trial or is undergoing sentence by court-martial. In time of war, military authorities need not surrender soldiers to civil authorities.

Article 75. *Misbehavior Before the Enemy.*

Misbehavior before the enemy includes not only acts of cowardice, but also any misconduct, disobedience, or neglect which endangers the safety of a military command.

Article 76. *Subordinates Compelling Commander to Surrender.*

Article 77. *Improper Use of Countersign.*

Parole and countersign are passwords. A parole is normally the name of an American general and is used by members of the guard and officers of the guard to identify the officers and to facilitate night inspections. Countersign is usually the name of an American battle and is furnished to the guard and other persons authorized to the area which is being guarded.

Article 78. *Forcing a Safeguard.*

A safeguard consists of orders designed to protect persons, households, and property against military marauders and other disorderly parties. It is the duty of the military command to protect persons and property, generally in occupied areas. Forcing a safeguard consists simply of willful disregard or violation of the orders.

Article 79. *Captured Property to be Secured for Public Service.*

Article 80. *Dealing in Captured or Abandoned Property.*

Article 81. *Relieving, Corresponding With, or Aiding the Enemy.*

Article 82. *Spies.*

This is the only offense for which the death penalty is mandatory. A court which convicts a person as a spy must impose the death penalty.

Article 83. *Military Property—Willful or Negligent Loss, Damage or Wrongful Disposition.*

Not only is it an offense for a soldier to wilfully destroy government property, but it is also an offense for him to permit property to be lost, spoiled, or damaged through negligence.

Article 84. *Waste or Unlawful Disposition of Military Property Issued to Soldiers.*

This Article is distinguished from Article 83 in that the property mentioned in Article 84 is property actually issued to a soldier.

Article 85. *Drunk on Duty.*

Drunkenness is one of the easiest offenses to establish. Whereas many state courts require doctors' examinations and certificates to establish drunkenness, in the army any person is regarded as competent to testify as to a man's sobriety. Drunkenness is defined as any intoxication which is sufficient simply to impair the rational and full exercise of the mental and physical faculties. This means simply any condition which might, for instance, cause a person to stagger slightly, to falter in his speech, or to be slow in his reactions constitutes drunkenness under this article.

Article 86. *Misbehavior of Sentinel.*

There is no longer any distinction between a sentinel and a guard. Any person charged with the responsibility of guarding a particular position or area violates Article of War 86 if he is found drunk or sleeping, or if he leaves his place of duty before he has been properly relieved. It is not necessary that the sentinel be formally posted.

Article 87. *Personal Interest in Sale of Provisions.*

Article 88. *Intimidation of Persons Bringing Provisions.*

Article 89. *Good Order to be Maintained and Wrongs Redressed.*

Article 90. *Provoking Speeches or Gestures.*

This article is the counterpart of Articles 63 and 65 which prohibit disrespect toward commissioned officers and non-commissioned officers. Under Article of War 90 it is an offense for all persons subject to military law including commissioned officers and noncommissioned officers to use reproachful speeches or gestures to another, even a military inferior.

Article 91. *Dueling.*

Article 92. *Murder—Rape.*

Murder is the unlawful killing of a human being with malice aforethought.

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By unlawful is meant without legal justification. Malice means either ill feeling or a state of mind consistent with an intention to cause death or serious bodily harm. Rape is unlawful intercourse with a woman by force and without her consent.

Article 93. *Various Crimes.*

Manslaughter, like murder is unlawful homicide, that is, the killing of a man. Unlike murder, it is not accompanied by malice aforethought. Voluntary manslaughter exists where the act which caused the death was intentional but not premeditated. One who in the heat of sudden passion kills another, would not be guilty of murder but instead would be guilty of the lesser offense, manslaughter. Involuntary manslaughter is a homicide unintentionally caused in the commission of an unlawful act or through negligence. A soldier who drives a jeep at an excessive rate of speed and strikes and kills another soldier would be liable to punishment for manslaughter, even though, of course, he had no intention whatsoever of killing anyone. A military policeman who uses undue force which results in the death of a soldier, likewise is liable to punishment for manslaughter.

Mayhem, another offense denounced by Article of War 93, is the injuring of any part of a man's body whereby the man is rendered less able in fighting to defend himself.

Arson is willful and malicious burning of the dwelling house of another. The law against burglary and housebreaking provides that no one may enter the building of another with the intent to commit an offense therein.

Burglary differs from housebreaking in that for the commission of burglary the offense must have taken place at night and the building must have been a dwelling house. Housebreaking may be committed by breaking in any building at any time. Housebreaking requires an intent to commit any offense. For burglary the offense intended must have been a felony.

Robbery, larceny, and embezzzlement are known as the theft crimes. All involve the taking of property of another. To commit robbery the person must take property from the person or presence of another by violence or intimidation. Larceny does not require the use of any violence or that the property be taken from the person or presence of another. One who sneaks into a man's automobile while the owner is away and runs off with the owner's wallet would be guilty of larceny. Should the owner be in the car and the thief points a gun at him and require that he turn over the wallet, the offense would be robbery. Embezzlement is the misuse or appropriation of property by a person to whom it has been entrusted. Should a private give to his corporal his monthly pay and the corporal receive it to keep it for the private, the corporal would be guilty of embezzlement if he wrongfully disposed of it.

Perjury is lying; it is more than that, however, it is the giving of false testimony concerning an important fact in a trial or other judicial proceeding.

Forgery is the false and fraudulent making or altering of a writing which would, if genuine, apparently impose a legal liability on another to his prejudice. Should Richard Roe sign a check "John Doe" he does apparently impose a legal liability on John Doe and he thereby commits forgery. To change a check reading $10.00 to $1000 is likewise forgery. Even to use a fictitious name is forgery. These writings or alterations must be made with an intent to defraud, but it is not necessary that the fraud should succeed. In fact, it is not even necessary that an attempt be made to pass the forged instrument, to offer the check to be cashed, for instance.

Sodomy is unnatural intercourse. It consists of physical connection between one man and another by rectum or by mouth, by a man and a brute animal, or even by a man with a woman by rectum or by mouth. A soldier who submits to sodomy is equally guilty with the person who proposes it. Five years punishment for each offense of sodomy is authorized.

An assault is an attempt or offer with unlawful force or violence to injure another bodily. To raise a club over, to point a gun at, or even to shake one's fist at another is an assault. It is not necessary that the club to used

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to strike, or that the gun be fired, for instance, for the assault to have occurred. Mere words, however, do not constitute an assault. Assaults with intent to commit a felony, or with intent to do bodily harm are serious offenses punishable in general courts-martial by confinement from one to twenty years.

Article 94. *Frauds Against the Government.*

This Article includes some offenses denounced by Article of War 93, for instance larceny, and embezzlement but where the subject matter of the larceny or embezzlement is government property the offense is chargeable only against Article of War 94. The Article denounces many types of conduct designed to defraud the government such as making of false claims, forging, or falsifying the record or records whereby the government is defrauded, and misappropriation or misapplication of government property.

Article 95. *Conduct Unbecoming an Officer and Gentleman.*

This Article applies to officers only and provides that an officer guilty of such conduct must be dismissed. The Article does not describe the specific conduct which is unbecoming, but the Judge Advocate General in specific instances has found drunk and disorderly conduct, borrowing from enlisted men, and association with notorious prostitutes, to be violations of the Article.

Article 96. *General Article.*

The title of this Article is highly descriptive of its contents. It makes punishable all disorders and neglects to the prejudice of good order and military discipline, all conduct of a nature to bring discredit upon the military service, and all crimes or offenses not capital not mentioned in other Articles. In no other Article are appearing in civilian clothing, failing to pay a just debt, indecent exposure, and loaning of money at excessive rates of interest denounced, but such conduct is either prejudicial to good order or military discipline or tends to bring discredit upon the military service and is thereby a violation of the Article. Perhaps his conscience, better than anything else, will indicate to a soldier specifically what conduct is intended by Article of War 96. Borrowing another's pass or selling one's pass, introducing liquor into quarters in violation of standing orders, and wearing unauthorized uniforms or insignia are examples of such conduct.

Article 104. *Disciplinary Powers of Commanding Officers.*

See discussion "Disciplinary Powers of Commanding Officers," supra.

Article 105. *Injuries to Property—Redress of.*

This Article provides a means whereby persons whose property has been injured or destroyed by soldiers might secure redress. A court-martial is not authorized to impose a forfeiture to the benefit of anyone; but a tavern keeper whose window is smashed by a soldier, might appeal to the soldier's commanding officer who will take proper steps to have the complaint investigated. Should the complaint be found valid, the claim may be satisfied by a stoppage of pay against the soldier. Where the identity of the offenders responsible for the depredation can not be ascertained but their organization is known, stoppage can be apportioned against all members of the organization.

Article 106. *Arrest of Deserters by Civil Officials.*

Article 107. *Soldiers to Make Good Time Lost.*

Article 108. *Soldiers—Separation from the Service.*

Article 109. *Oath of Enlistment.*

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# CHAPTER 4

# MAPS AND AERIAL PHOTOGRAPHS*

Maps and photographs are tools which are being used increasingly by officers and men in all arms and services. Decades ago only the higher commanding officers had personal copies of maps and these were often poor and inaccurate. Rapidly moving combat operations over huge expanses of land, sea and air oftentimes by a small group detached from its parent unit, has made it necessary for every man in the Army to be somewhat familiar with maps and aerial photographs.

As was mentioned before, maps are tools. Their primary purpose is to facilitate movement from one place to another over unfamiliar terrain with a maximum of safety and dispatch. Naturally maps, like tools, have limitations. You cannot use a screw driver for a pry bar, a chisel, or a hammer. Neither should you expect a map or photograph to be a crystal ball which will answer all questions put to it. The realization of the limitations and capabilities of maps and photographs is as much a part of being an expert map reader as any other single item.

In this chapter, each phase of map reading will be discussed and demonstrated. Several problems are listed which you may work; the answers will be found in Appendix III. A caution might well be inserted here. Proceed gradually and carefully. Be confident that you KNOW and understand each paragraph before you go on to the next.

## INTRODUCTION TO MAPS

Before you attempt to study or use a map, it might be a good idea first to analyze what a map actually includes. Maps are made to serve specific purposes or needs; out of a particular need grows a particular type of map. Now you might say, "military requirements make all military maps of one type, so that type is the only one I shall have to study." Your statement is both correct and incorrect. It is correct in that practically all military maps are similar since they include features of military interest such as roads, towns, woods, railroads, bridges, and lay special stress upon topography. But your statement would be incorrect because the military requirements of the various agencies of the army are not identical. The higher staffs, such as corps or army, employ maps which show many square miles of country. To limit the size of such maps, detailed information is omitted. The map itself is of a rather small scale; perhaps an inch on the map equals about eight miles on the ground. A platoon leader using a map as an aid in controlling the movement of his platoon in front line combat would use one of relatively small area, perhaps covering an area of not more than 16 sq. miles, he wants every detail that can be shown without making the map difficult to read. His map would be of very large scale, such as three inches on the map representing one mile on the ground. Thus it is apparent that owing to the variety of military operations a corresponding variety is called for in maps.

Be it small scale or large scale, American, British, French, Japanese or of any other origin, a map can be read if you know three simple fundamental principles. These three simple things are indicated on foreign maps in a manner similar to the way in which they are shown on maps produced in the United States. Therefore, if you became proficient in reading U. S. maps, you are well on the road to mastering the reading of all types of maps. These three fundamentals are the methods by which distance, direction, and elevation are indicated on a map. A major portion of this chapter will be concerned with the explanation of these fundamentals.

## PROJECTIONS

A map maker is faced with one problem which creates many difficulties for him. It has to do with showing the earth's surface, which is approximately spherical in shape, on a flat piece of paper. If the world were flat, as was believed in early times, the map maker's job would be easier. But it is not flat; so how does he solve his problem? He could make a map in the shape of a sphere, and this he

*The reader is referred to the envelope in the back of this volume for the MONTREUIL sheet and the three Aerial Photos referred to in this chapter.



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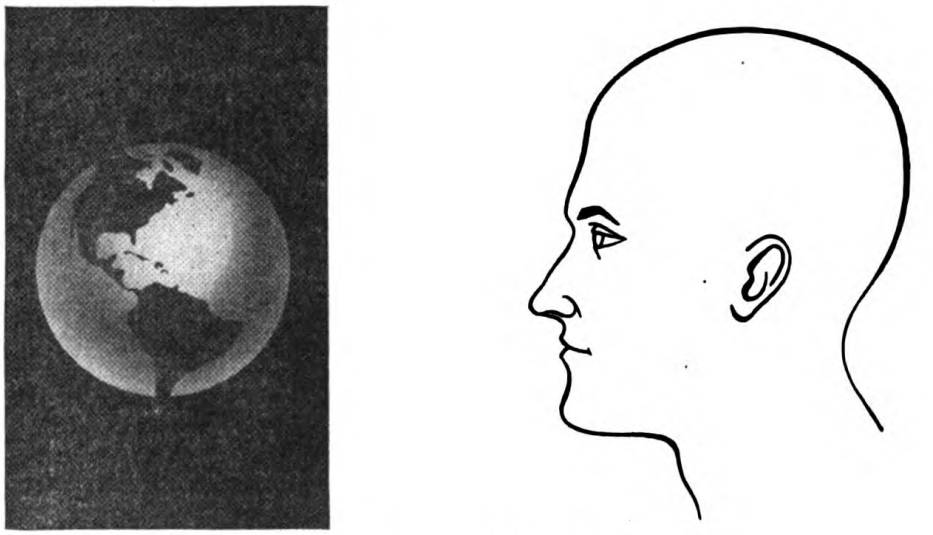
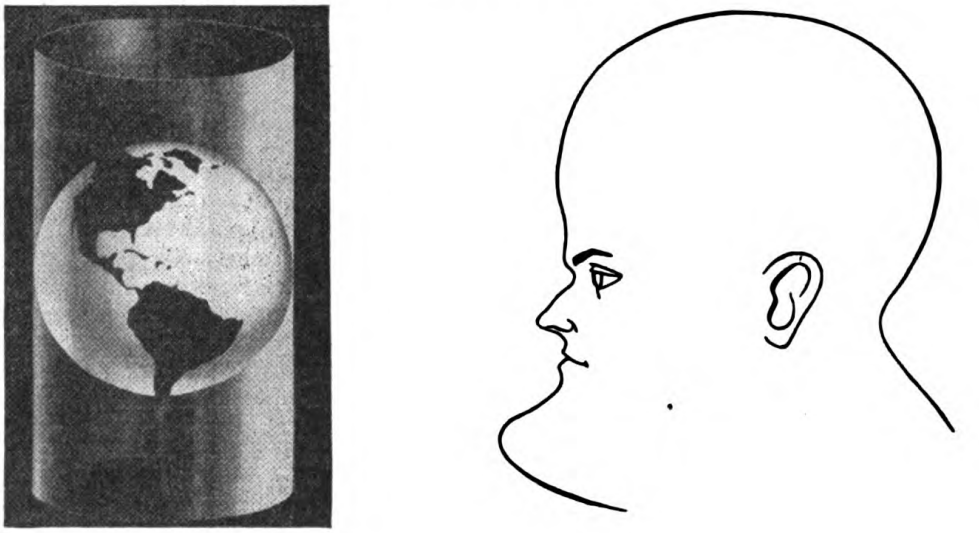


**Figure 1. A Globe Compared to a Normal Head.**



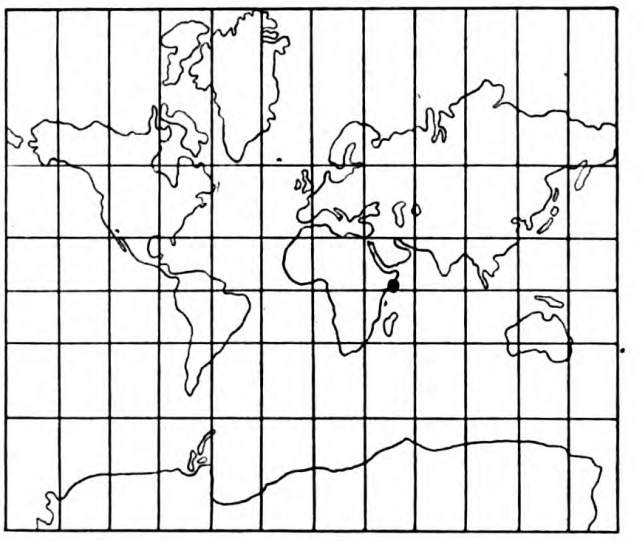


**Figure 2. The Surface of a Globe Projected on a Cylinder, Showing How a Mercator Projection is Made. The Typical Distortion is Illustrated by the Head.**

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sometimes does. However, a spherical map or globe has great limitations. First of all, to keep the globe to a usable size, the earth's details can be indicated only to a limited extent. A globe large enough to give the detail the platoon leader would want would have to be miles in diameter. Therefore, to make the map more practicable, it is put on a conveniently sized sheet of paper that can be folded and carried in a pocket. To transpose the curved surface onto a flat piece of paper is done by means of a projection. There are many kinds of projections, all having certain advantages and limitations. Each is adaptable to a particular usage.

**Mercator Projection.** A Mercator projection is characterized by the fact that the meridians of longitude (true north and south lines) are shown parallel, when actually they converge at the two poles. It makes for a very convenient and attractive map, is used principally to show relatively large areas to a small scale, and is the one generally employed in showing the entire earth's surface. The projection is constructed by placing a cylinder, with a diameter equal to the diameter of the earth at the equator, so that it touches the earth only at the equator. The surface of the world globe (Figure 1) is then projected into the surface of the cylinder. This is demonstrated in Figure 2. To illustrate the distortion created by this type of projection, the figure of a man's head has been placed alongside the globe in Figure 1, and its development by the mercator projection is shown in Figure 2. Also included in Figure 2 is a simple map of the world shown according to the mercator projection. This projection has the disadvantage of showing areas near the poles as greatly distorted. Greenland appears approximately nine times its correct size when compared to a country situated near the equator.

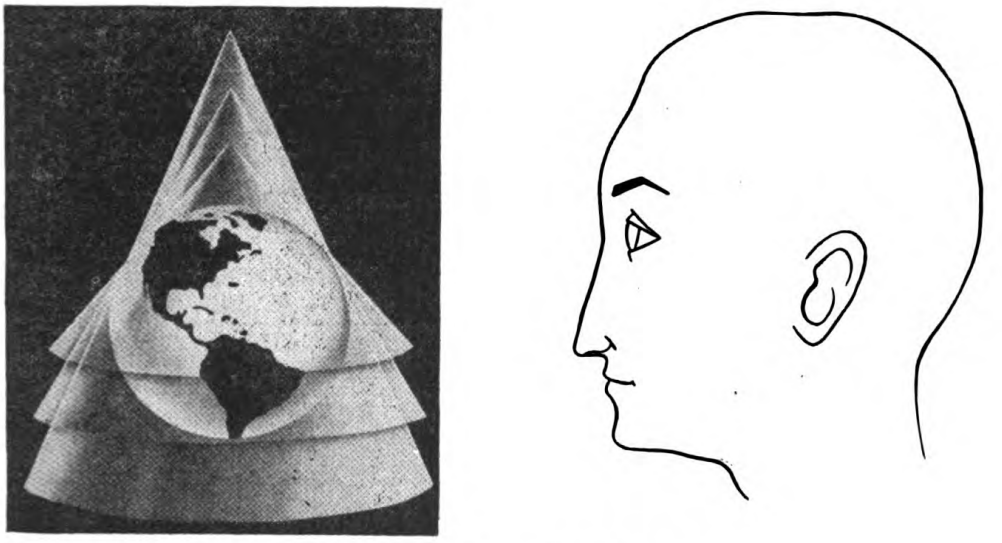


**Figure 3. A Polyconic Projection.**

**Polyconic Projection.** The Polyconic projection is one of the more accurate ways of showing the curved global surface on a flat map sheet with a very small amount of distortion. Figure 3 illustrates the manner in which it is constructed. Note the small amount of distortion; it becomes negligible when this method is used for large scale maps as is almost always the case. The Polyconic projection and others of somewhat similar form (the Lambert) are the ones most suited to military mapping.

## HOW TO READ COORDINATES

At some time or other you must have asked someone for directions as to how to reach a certain place, say for instance, the Jones' Farm. In reply to your query you probably received an answer somewhat like this: "go down the road about half a mile, turn right at the gravel road next to the railroad crossing, continue down that road until you see a red barn on the right and a bridge a quarter mile farther down the road, turn left here and go down this road for about 1½ miles farther until you see a farm on the right with two silos attached to the barn.

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That isn't the Jones' farm. His place is across the road from it." If you attempted to follow such directions you normally would have found that your informant forgot to tell you about one particular left turn you should have made. For this reason you probably never found the Jones' farm. A similar problem could arise in describing a course to be followed on a map. It would be difficult to identify even as commonplace an object as a church, a road junction, or a bridge. In most instances such identification would require a voluminous description which probably could be misinterpreted. The map maker has come to the aid of the map reader and has placed a device on the map which will enable him to identify a point on the map in a manner similar to the way in which a man tells his wife to meet him at the corner of 9th and Vine when on an excursion in the city.

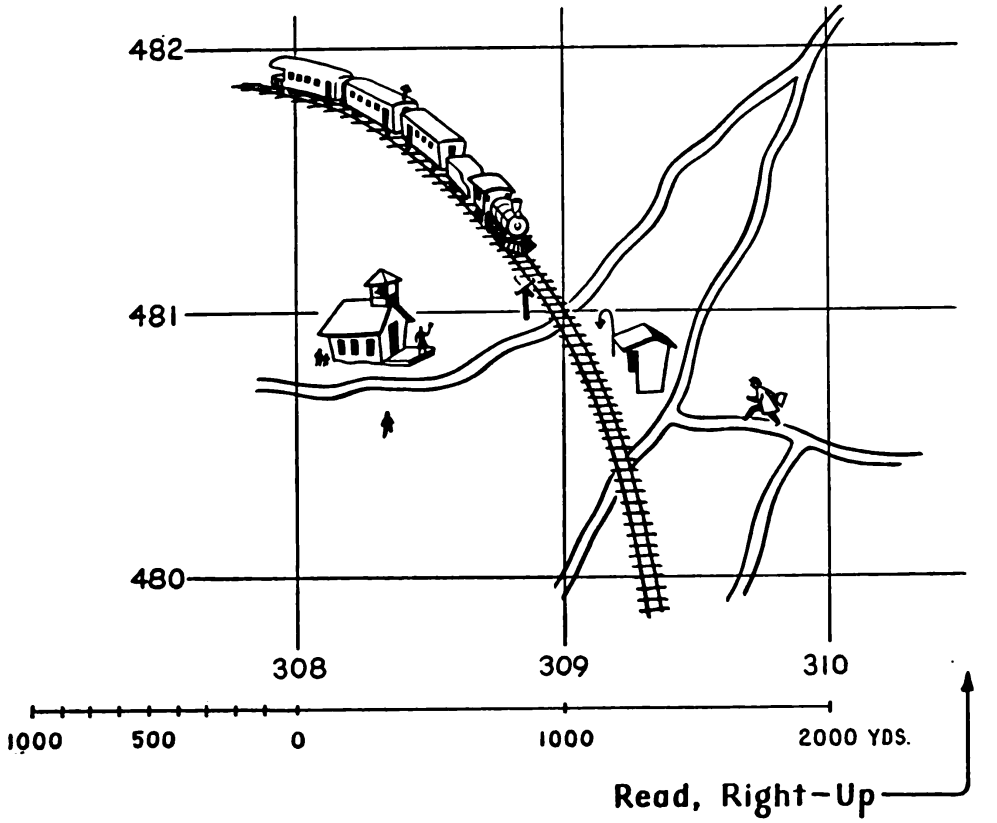



**Figure 4. Coordinates.**

This device is called a grid and consists of evenly spaced parallel lines, one set of which runs approximately north and south, with the second set running east and west. The space between these lines can be any of a number of figures such as 1,000 ft., 1,000 yards, 1,000 meters, 5,000 yards, 10,000 meters, etc. In figure 4, notice that a grid system has been printed on the map. The interval between grid lines is 1,000 yards. Such an interval would normally be used on a fairly large scale map. On a medium scale map, this interval might be 5,000 yards. Examination of figure 4 shows that the vertical lines are numbered 308, 309, 310. The horizontal lines are numbered 480, 481, and 482. To give a grid reference, or as it is more commonly termed, the "grid coordinates," of the school house near the lower left corner of the map, the reading would be (308.3—480.9), this reading being placed within parentheses. The rule that must always be kept in mind by the map reader is 'read-right-up'. In other words, you read to the right of the 308 vertical line, estimating the symbol for the school house to be three-tenths of the way from the 308 line to the 309 line. The vertical reading is given in a similar manner and is written after the horizontal value. It is normal practice to give grid coordinates estimating the accuracy to tenths. Thus with a grid interval of 1,000 yards, the school house will be located to an accuracy to 100 yards on the ground. A dash separates the horizontal and vertical values.

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Several practices have been adopted by persons who have occasion to make frequent use of grid coordinates. The first of these is to drop all but the last two figures before the decimal. In other words, the abbreviated grid coordinate reading for the school house would be (08.3—80.9). Another practice is to identify an object or point, which cannot be mistaken for any other similar object within the same grid square, by giving merely the coordinate of the lower left hand corner of the grid square, i.e., the southwest corner of the grid square. As an example, since there is only one road junction in the grid square, it could be identified by 'RJ (309—481).' Giving a reference 'RJ (309—480)' would be confusing and would not identify a particular road junction since there are more than one within the grid square in question, hence a reading to tenths would be necessary. 'RJ (308.4—480.6)' would accurately locate the road junction near the railroad station.

## DISTANCE

The first of the three quantities a map reader must be able to measure and use is distance. To illustrate how simple this measurement is, assume that you are to procede from your ordnance company bivouac area to headquarters, 9th Infantry Division, as shown in figure 5.

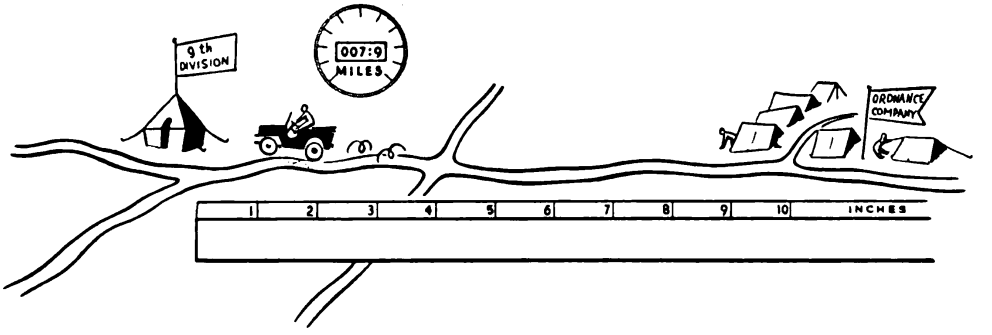



**Figure 5.**

You take a jeep to make the trip. Checking the speedometer at the completion of the journey you find that you had traveled 7.9 miles. You have thereby determined the ground distance as being 7.9 miles.

Next you pull a small map from your pocket. You examine it and find that the location of the division command post at the road junction where you now are can be seen on the map. A closer examination indicates that your company bivouac site is also discernible. Measuring between these two points on the map you find the distance to be 10 inches. You notice that the portion of the map stating the representative fraction or scale of the map is missing. You decide you wish to know this RF or representative fraction. Do you have enough information to obtain it? Yes.

First of all, what is the meaning of RF? Stated simply, it is the ratio of the map distance to the ground distance and is normally written:

$$RF = \frac{\text{Map Distance}}{\text{Ground Distance}}$$

One caution must be observed. To obtain the correct RF both distances must be in the same units; as both in inches, both in feet, or both in meters. You can now apply the above to your map from which the statement of the RF is missing, as you have both the ground and the map distance. It is possible to substitute these values in the relationship and thus obtain the RF, all the while remembering to use the same units in the numerator and denominator.

$$RF = \frac{\text{map distance}}{\text{ground distance}} = \frac{10 \text{ in.}}{7.9 \text{ mi.} \times 5280 \text{ ft} \times 12 \text{ in.}}$$

The figures in the denominator are necessary to convert miles to inches, there being 5280 feet in a mile and 12 inches in a foot. Simplifying the above;

$$RF = \frac{10}{7.9 \times 5280 \times 12} = \frac{1}{50{,}054} \text{ or approximately } \frac{1}{50{,}000}$$

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This means that a measurement of one inch on a map represents 50,000 inches on the ground. One foot on the map equals 50,000 feet on the ground. Another way of expressing it is that the map shows distances only 1/50,000th as large as they actually are on the ground.

## GRAPHIC SCALES

Since you have determined the RF of the map you are in a position to use this information to make the measurement of distances between other points on the map much simpler. In the manufacture of maps, one requirement always observed is to keep the scale uniform all over the sheet. You have found the scale or RF of the map to be 1/50,000. You are safe in assuming that this applies all over the map.

Imagine that you wish to find out how far it is from division headquarters to a neighboring town where you have been directed to go to pick up some PX supplies. Examining your map you see that the location of the town is shown. Now if you had some form of a scale or measure graduated so that it would read in yards or in miles of ground distance, you could lay it along the road symbol leading from the division headquarters to the town and immediately read off the distance. Such a device would be called a graphic scale. The procedure for constructing such a graphic scale is as follows.

It would be well to have a graphic scale for this particular map representing about 5 miles of ground distance in length. Using the definition of RF—

$$RF = \frac{\text{map distance}}{\text{ground distance}}$$

it can be seen that you have two of the three things necessary and thus can solve the third; the map distance or map length of the graphic scale which is to represent five miles on the ground. The facts you know are the RF which is 1/50,000 and the ground distance of 5 miles. Substituting in the definition of RF

$$\frac{1}{50{,}000} = \frac{\text{map distance}}{5 \text{ miles}}$$

If you would solve the above equation, the map distance would be expressed in a very small decimal part of a mile, since from the definition of RF the numerator and denominator must be in the same units. Having the map distance in inches would be much more convenient. To effect this, it only will be necessary to convert the ground distance given in the denominator to inches. This can be done readily by multiplying the 5 miles by 5280 thus converting the distance to feet; then multiplying by 12 to convert the feet into inches. This is illustrated below:

$$\frac{1}{50{,}000} = \frac{\text{map distance}}{5 \text{ mi} \times 5280 \text{ ft} \times 12 \text{ in.}}$$

Cross-multiplying;

$$50{,}000 \times \text{map distance} = 1 \times 5 \text{ mi} \times 5280 \text{ ft} \times 12 \text{ in.}$$

$$\text{Solving for map distance} = \frac{1 \times 5 \text{ mi} \times 5280 \text{ ft} \times 12 \text{ in.}}{50{,}000}$$

Simplifying:

$$\text{map distance} = 6.336 \text{ in.}$$

This then is the length of the graphic scale to be used on the map. It represents 5 miles on the ground. Measuring this distance and showing it graphically, it appears as follows:

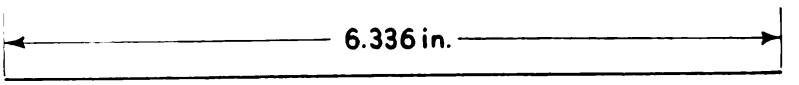



**Figure 6.**

This is not of much use. It would be much more convenient if we had it subdivided into smaller parts, say each representing one-half mile. Thus we must divide the line into 10 equal segments. A rapid and elementary method for performing this operation is shown in Figure 7.

**Construction of a Graphic Scale.** A line A-C was drawn beginning at one end of the line of known length (at A) and extending downward and to the right at an angle of about 30°. On this, length "L" was chosen and layed off along A-C

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starting at A. The length, L, is layed off for ten successive times. The final point D is connected to B by a line. Then through each of the other points on line A-D, lines are drawn parallel to B-D extending from the points upward to line A-B. The line A-B has thus been divided into 10 equal parts and can be labeled as shown. (Figure 7)

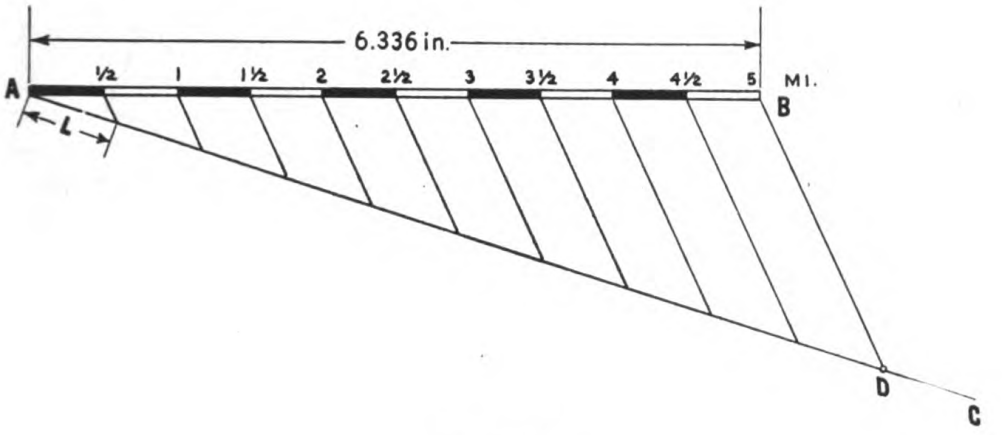



**Figure 7.**

The graphic scale just completed can be used to measure up to 5 miles of ground distance, measuring to the nearest one-half mile. Remember that this scale will work only on maps of RF of 1:50,000. Below are illustrated certain other scales which can also be used on the same map. They are graduated in a variety of units, but each was constructed by following the procedure just outlined.

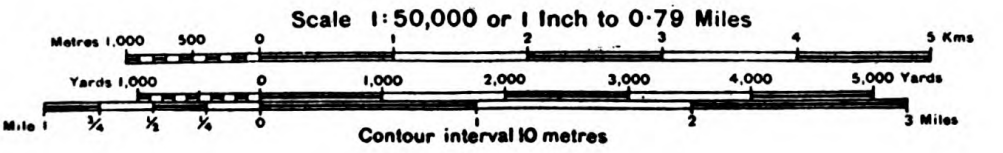



**Figure 8.**

## COMPUTATION OF REPRESENTATIVE FRACTION

Sometime it may be necessary for you to compute the representative fraction of a map of an area which is perhaps inaccessible to you. When it is possible actually to measure the ground distance by pacing, by use of a tape or speedometer readings, the information for the denominator of the representative fraction is immediately available and can be inserted therein. However, the problem that is now facing you is a little more complex. To solve the following: $RF = \frac{\text{map distance}}{\text{ground distance,}}$ the value for the map distance can be measured directly on the map. Say it is 7.6 inches, the map distance between the towns of Kent and York, in Figure 9. The ground distance cannot be obtained by measurement so you will have to employ some other means for determining it.

If you have another map (call it map 'B' in Figure 10—the first map for which we are now computing the RF, being known as 'A') you may use the definition of RF as applied to map 'B' to compute the ground distance, provided the towns of Kent and York appear on map 'B' and its RF is shown. In this case the 'B' map distance is 1.9 inches and the RF is 1/60,000. Figure 10. With this information we can solve for the RF of map 'A.'

*Solving:*

*Step 1:* Map 'A'

$$\text{RF "A"} = \frac{7.6 \text{ in.}}{\text{ground distance}}$$

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**MAP A**

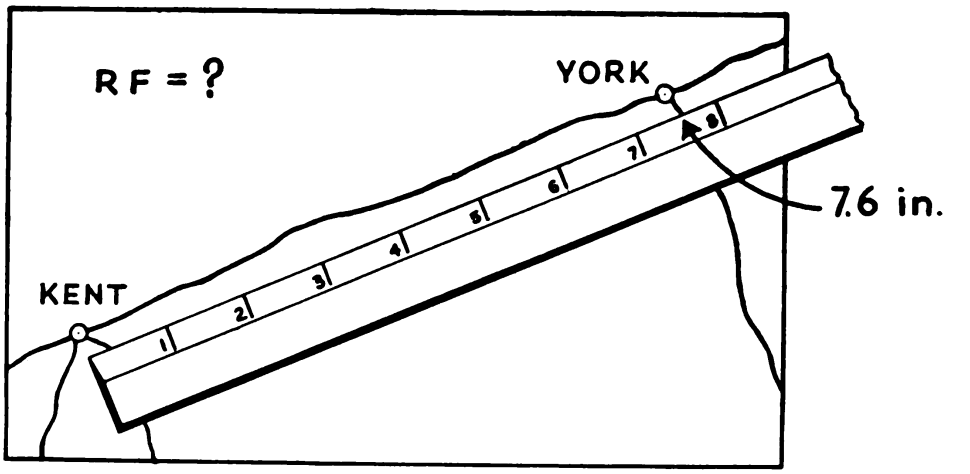



**Figure 9.**

**MAP B**

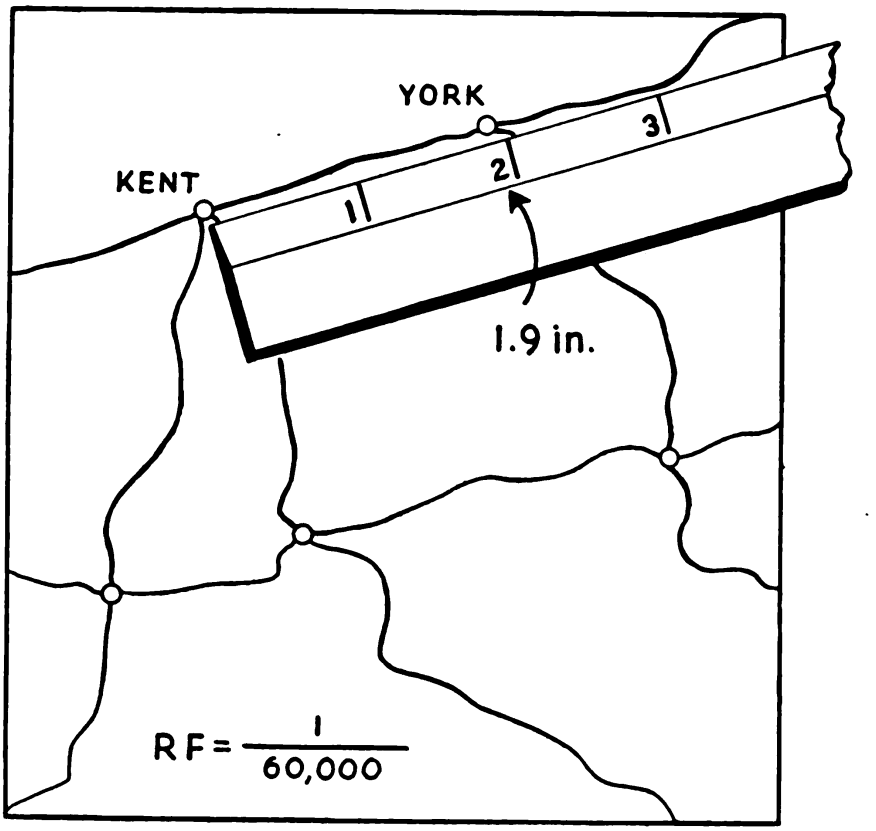



**Figure 10.**

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*Step 2:* Map 'B'

$$\text{RF "B"} = \frac{\text{map distance}}{\text{ground distance}}$$

Substituting known quantities in the above:

$$\frac{1}{60{,}000} = \frac{1.9}{\text{ground distance}}$$

Ground distance = 1.9 x 60,000
= 114,000 inches

(Note: This is actually the ground distance. It is about two miles, 63,360 inches equalling one mile.)

*Step 3:*

Taking the value for the ground distance found in step 2 and substituting it in the denominator in step 1.

$$\text{RF "A"} = \frac{7.6 \text{ in.}}{114{,}000}$$

$$\text{Simplifying} = \frac{1}{15{,}000} = \text{representative fraction of map 'A.'}$$

This means that one inch on map 'A' represents 15,000 inches (approx. ¼ mile) on the ground, one foot on map 'A' represents 15,000 feet on the ground, and one yard on the map represents 15,000 yards on the ground.

This is a large scale map because it represents ground objects and distances to 1/15,000th their actual size. The 1/60,000 map was of a smaller scale than the 1/15,000. It shows a given distance as being only one-fourth as large as it would appear on the 1/15,000 map. Notice too that the smaller scale map has actually a smaller number as its RF; 1/60,000 is a smaller quantity than 1/15,000.

## COMMON REPRESENTATIVE FRACTION

The RF of a map determines, to a great extent, the majority of its uses. A map with an RF of 1:500,000 (one inch on the map equaling about eight miles on the ground), being of a medium scale, is adaptable to the planning of large scale operations of corps and armies. This is because a rather large land area can be shown on a sheet of paper of a size convenient to handle. Since planning of major operations comes under the heading of strategy, the map with an RF of 1:500,000 is often called a 'strategic map.' On the other hand, maps of RF of 1:62,500 (one inch on the map representing approximately one mile on the ground) are suitable for the control of the movements of smaller units like regiments or battalions. These maneuvers fall under the general heading of tactics, hence the title of 'tactical map' is often applied to those of large scale like 1:62,500.

Maps have numerous uses and are employed by all persons in the Army be they four-star generals or privates driving supply trucks. Each job, in its own way, is of great importance to the success of the campaign as a whole. The army mapping agencies are aware of this fact and supply that type of map best suited to the task. You will, therefore, have maps of small scale, 1:1,000,000 or so, being used by the army commanders, the 1:100,000 variety used by division commanders, and those of 1:25,000 by ordnance soldiers driving trucks in a convoy.

### Problems

**Distance—Computation of RF:**

1. You have been given a sketch of an area on which the distance between the towns of LANCASTER and OSBORNE measures 8.3 inches. You drive from LANCASTER to OSBORNE and your speedometer shows the mileage to be 5.4 miles. Compute the Representative Fraction of the sketch.

2. You are assigned with an ordnance base shop in England. You have been given orders to drive down to the LINCOLNSHIRE Ordnance Depot to pick up some spare parts. The sign post indicates the distance to LINCOLNSHIRE to be 11.8 Kilometers. The map distance, along the road, is 23.6 centimeters. What is the RF of your map?

**Distance—Construction of Graphic Scales:**

3. What is the length of a graphic scale which will represent 5000 yards of ground distance on a map of RF 1:62,500 Give your answer in inches.

4. You have been given a photograph which has no information shown in the

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margin. Checking the photo against a map you calculate the representative fraction to be 1:14,500. You are told to construct a graphic scale to represent 3000 meters of ground distance. How long will this scale be in centimeters

5. A graphic scale to show 25 miles on a map of RF 1:500,000 would measure how many inches on the map

**Distance—Computation of RF—Ground Distance determined from Map:**

6. The photo distance between RJ 71 and CR 88 is 4.2 inches. The RF of the photo is not labeled on it. You also have a map which includes RJ 71 and CR 88. The distance between these two points is 1.35 inches. The map's RF is 1:40,000. What is the RF of the photograph?

7. What is the RF of a photo which shows the distance between points A and B to be 22.8 centimeters? The CALAIS Sheet, RF 1:50,000, shows this distance to be 34 centimeters.

**Distance—Measurement:** MONTREUIL, 1:50,000

8. Give the railroad distance from the station in BEUTIN (740274) to the station in BRIMEUX (814218) in meters, yards, miles.

9. What is the cross-country (straight line) distance from the church in CAMPIGENULLES LES GRANDES (727211) to the watermill (729282) in yards?

## DIRECTION

In the introduction to this chapter a statement was made that only three features of a map need be known, to be able to read the map. The first, distance, has just been covered. The second is direction.

Imagine that you are assigned to a maintenance unit operating in desert terrain. You are told to take a truck to a neighboring maintenance unit to get an engine part which you need badly and do not have in stock. You are told that the company is nine miles from where you are now located. You know how far it is, but which way do you go? Will you head west, east, north or south? The fact that the desert terrain permits you to go in *any* direction is all the more confusing. The purpose of the succeeding paragraphs is to familiarize the reader with means for measuring or determining direction both on maps and in the field. Again simple direct methods will be illustrated.

## BASE DIRECTIONS

There exist three directions which are considered to be the bases or standards. They are used repeatedly by map readers. They are true north, magnetic north, and grid or Y north. Each will be discussed in some detail.

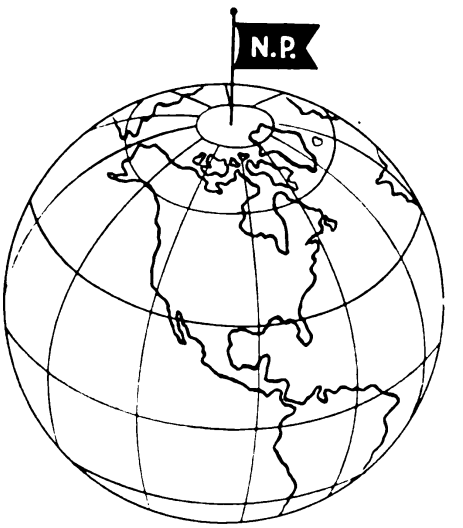



**Figure 11. True North.**

**True North.** Of the three standard norths, true north is the most permanent of all. Magnetic north and grid north are expressed in terms of their relationship to true north.

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There are a number of ways of defining true north. At any spot on the earth's surface it is the direction you would have to go to cover the shortest distance to reach the geographic north pole. The north pole is one of the two points (the other being the south pole) where the imaginary axis of the earth pierces its surface. See Figure 11.

The earth rotates about this axis, making one rotation in 24 hours and causing night and day. Another definition of true north might be; any line running along a meridian of longitude. Meridians of longitude are the lines connecting the north and south geographic poles and run in a true north and south direction throughout their entire length.

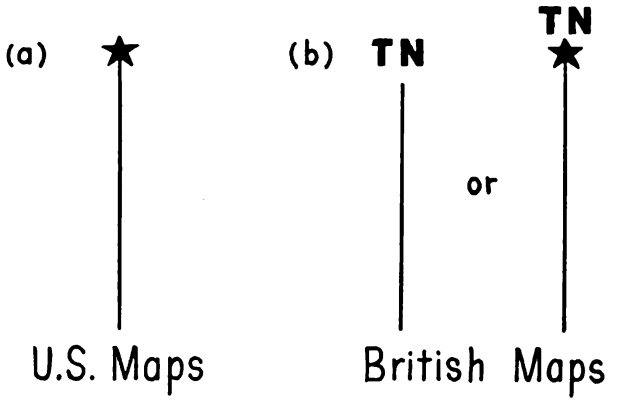



**Figure 12. True North Symbol.**

How is the direction of true north shown on a map? Generally by an arrow with a star tip. (Figure 12a) On British maps the direction may be shown by TN or by both a star and TN. (Figure 12b)

Direction is not often given in relationship to true north in map reading although navigators oftentimes use it to express direction. However, a knowledge of what true north is and how to use it is important as it is frequently employed in calculations for obtaining one of the other norths (magnetic or grid), which are used more frequently in army map reading.

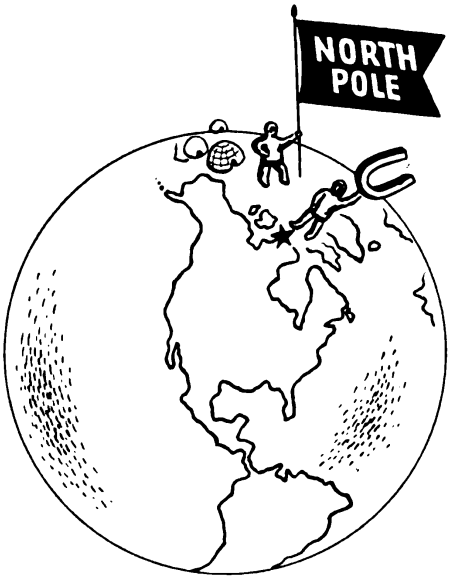



**Figure 13. Magnetic North.**

**Magnetic North.** The use of this north is necessitated by the fact that a man in the field can not readily determine the direction of true north. It is true that by observation of celestial bodies true north can be accurately ascertained; however,

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soldiers are not provided with the equipment to make these measurements. Hence, some other means for telling north is needed. The compass is the device universally used.

What makes a compass operate? Why does it give us a north direction? In Northern Canada on the Boothia Peninsula is a region which has magnetic properties. (Figure 13) If a bar of steel is magnetized and pivoted carefully at the balance, one end of the bar will move so that it points toward this region in Northern Canada. The north-seeking end of the bar is then pointing to magnetic north.

A difference arises in that the variation between true north and magnetic north (the direction in which this bar points) is not the same in most localities. Thus you have two norths, almost the same, but not quite. A little later you will be told how to express the relationship between the two.

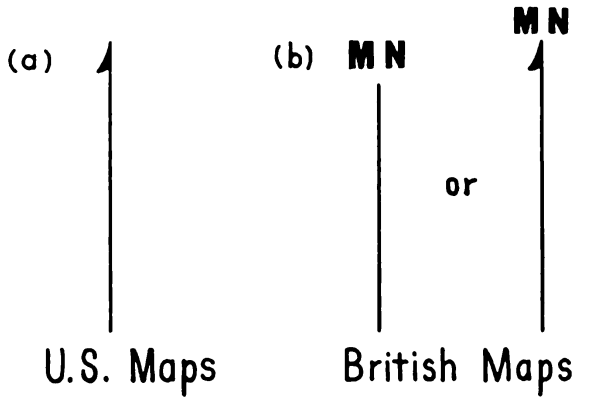



**Figure 14. Magnetic North Symbol.**

The method of representing magnetic north is normally a line with a half arrowhead. (Figure 14a) On British maps the letters MN may be used, and often both may be printed (Figure 14b).

**Grid North.** The third and final north is a direct result of a basic need of the map reader. In order that points can be designated more readily on a map, a grid reference system is overprinted on the map. The grid system consists of a series of lines spaced at regular intervals, one set running across the map generally in an east-west direction and the second set running up and down in a north-south direction.

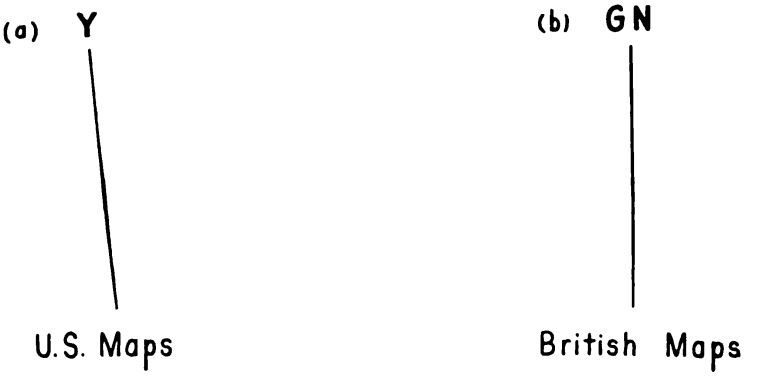



**Figure 15. Grid North Symbol.**

A more complete discussion of grids, grid systems, and their uses will be given later in the chapter.

These north and south lines printed at regular intervals on the face of the map sheet provide a handy north reference. Again a little problem develops. In most cases grid north is not the same as either true or magnetic north. This fact must be continuously kept in mind or else errors may result.

The conventional sign for grid north is a line with a Y at one end. (Figure 15a).

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It is proper to use the term 'grid north' and 'Y-north' interchangeably. The British label the grid north arrow with GN. (Figure 15b).

## DECLINATIONS AND GRID-MAGNETIC ANGLE

You are now acquainted with the three main directions. These directions are shown on good maps by means of a three prong diagram, Figure 16.

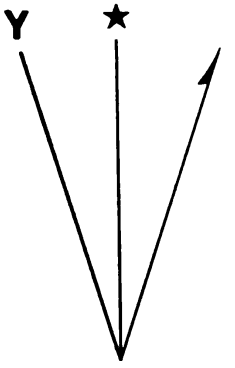



**Figure 16. Three Prong Diagram.**

This diagram may show true north in the center with grid north to the left and magnetic north to the right. However, the three directions may appear in any arrangement; it depends for what spot on the earth's surface the diagram is applicable.

For the sake of convenience and to assist in performing calculations involving direction, the angular relationships between these directions is either shown or labeled on most maps, in addition to their being graphically illustrated. These values are expressed in degrees, minutes, and seconds.

## MAGNETIC DECLINATION

The determination of direction in the field is made by means of a compass which shows the position of magnetic north. In most cases this direction differs from true north. This difference is known as magnetic declination.

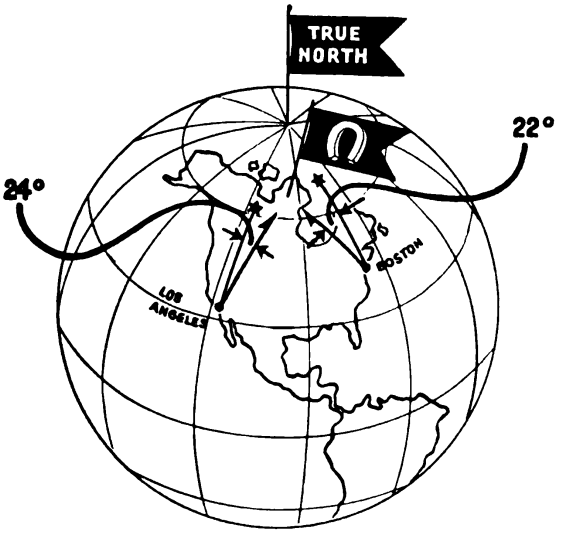



**Figure 17. Magnetic Declination.**

Imagine that you are in Boston, your compass needle would be attracted to the center of magnetic influence in Northern Canada as shown in figure 17. This is represented by a half-arrowhead. The direction of true north is shown by the star-tipped line. The angle between the two directions is 22°. This value is the

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magnetic declination at Boston. But note that if we were to say simply, "magnetic declination at Boston is 22°," which of the following would be correct? (Figure 18). **The answer would be, "I don't know."** From this you see that the statement of magnetic declination being 22° is not enough. At Boston, magnetic north falls on the west side of the true north arrow, hence it is known as west magnetic declination. The correct way, then, to state the declination for Boston would be, "magnetic declination 22° west." True north is the standard direction which is always used when magnetic declination is given.

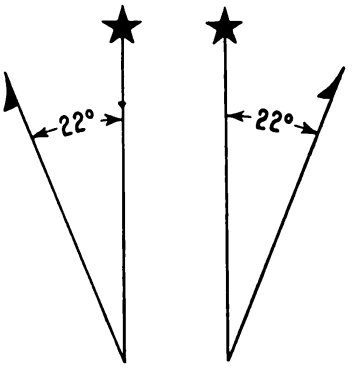



**Figure 18.**

When in Los Angeles, on the other hand, the compass will point to a position east of true north. The angle between the two directions is about 24°. The magnetic declination at Los Angeles (remembering the position of magnetic north is given in relationship to true north as the standard) is 24° east.

## AGONIC LINE AND ISOGONIC LINES

**Agonic Line.** In traveling from Los Angeles to Boston the magnetic declination would vary, the 24° of east declination decreasing gradually until it reached zero; then the declination would increase, but now it would be a west declination, finally reaching 22° at Boston. At the point where the magnetic declination was zero, being neither east or west, the direction of magnetic and true north are identical, the needle of the compass pointing to true north.

At many places in the United States and Canada the magnetic declination is zero. If all of these points should be indicated by small dots on a map and then connected by a line, the line could be said to be a line of 'no magnetic declination.' For the convenience of map makers and readers such a system has been established, the line being called the agonic line. This line continues on around the earth connecting points where magnetic north and true north run in identical directions.

**Isogonic Line.** On maps of large scale (maps which show a small ground area on a relatively large sheet of paper, RF 1:20,000 for example), the magnetic declination can be given for the center of the map sheet. Because of the small ground distance of any point from the center of the sheet, this declination would vary so little from that value at any other point on the map that the value may be presumed to apply for any point on the sheet. When a medium or small scale map is used, with a relatively large ground area being represented on a small sheet of paper, the magnetic declination would vary greatly for different points over the map. Showing the declination by a diagram would be difficult because it would necessitate the use of a great number of diagrams each applicable to a particular spot. This would again tend to clutter up the map. To solve this problem a system of isogonic lines was developed. An isogonic line, say the 3° east isogonic line, connects all points at which magnetic north lies east of true north with the angle between the two directions being 3°.

Figure 19 shows a map of the United States with the agonic line (zero magnetic declination) and isogonic lines plotted on it. Notice that when you are at any point east of the agonic line, you are in an area where your compass points west of true north and when you are west of the agonic line you are in a region of

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east declination. This system is used on many small scale maps, the lines being distinguishable normally by a notation: '9°W or 3½°E', etc.

*Caution.* Remember that an isogonic line is a line connecting points which have the same magnetic declination. If you are at a point which happens to be, say on the 9°W line, your compass points 9°W of true north. Your compass does not point along the isogonic line. Many map readers are prone to make this error when first looking at a map on which isogonic lines are shown. Remember the definition.

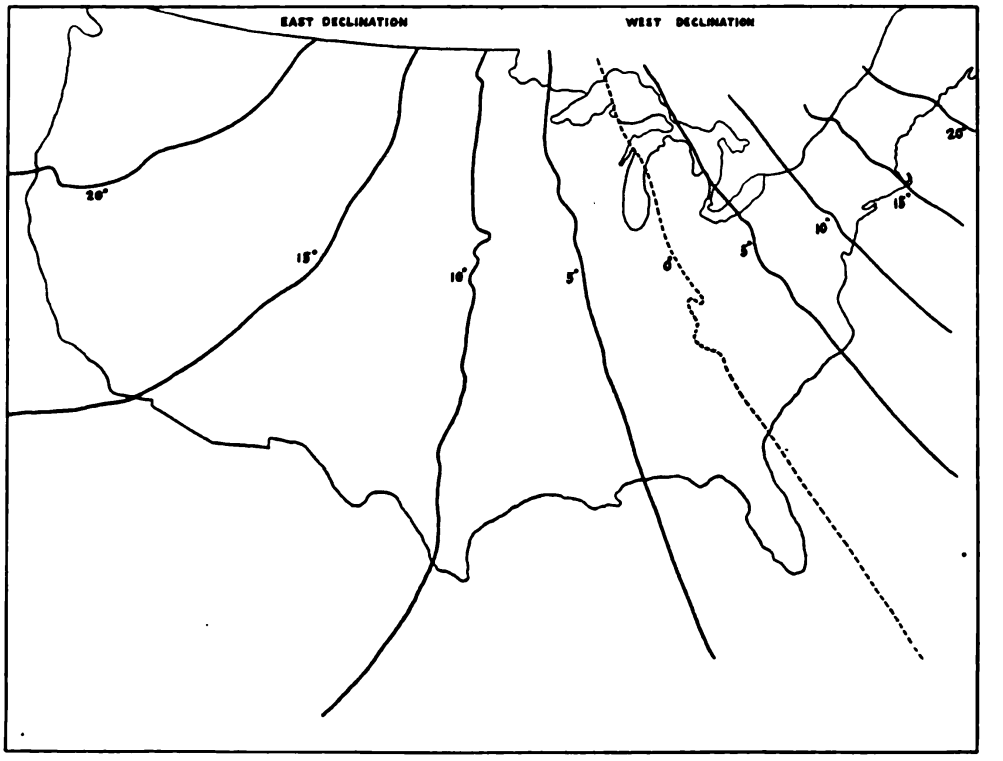



**Figure 19. Agonic (Dotted Line) and Isogonic (Solid) Lines.**

**Annual Magnetic Change.** Unfortunately, the magnetic influence which attracts the compass needle does not remain constant. It varies very gradually and at a uniform rate. This occurrence is generally expressed as an increase or decrease of a set amount per year. It is called the annual magnetic change. The amount is not great, usually so small that it is expressed in minutes e.g., annual magnetic change—eleven minutes east.

On maps this notation as to annual magnetic change is normally made somewhere in the margin near the diagram showing the north base directions. If the change is small, it may be ignored except for the most accurate of direction measurements and computations. When the map becomes so old that the cumulative magnetic change that must be applied to the diagram is quite large, the Army Map Service issues a new edition with the direction diagram corrected to a later date.

## GRID DECLINATION

The angular difference between true north and grid north is known as grid declination. It is a result of showing the curved surface of the earth on a flat sheet of paper. Usually the lines of longitude, which run true north and south, appear curved. For the purpose of rapidly locating points and areas on the map, a grid system is printed over all the other information shown. Grid systems will be discussed more thoroughly later in the chapter. Suffice it to say that a grid consists of a series of equally spaced, parallel, approximately north and south lines, and another series of approximately east and west lines. An area which has had a grid system placed upon it is usually divided into grid zones. In figure 20 the globe of the earth is shown with three lines of latitude, AM, BN, and CL.

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These lines run true north and south. Also is shown a grid zone, RSLM. Since by definition, lines SL and RM are parallel, the distance RS and the distance ML are the same length. Note, however, that due to the convergence of the lines of latitude as they near the north pole, the distance AC is shorter than ML. If a person were to be at point N, true north and grid north are the same direction. The grid declination would thus be zero. When at point M, grid north would be west of true north. Again true north is the base for giving the relationship between it and grid north, hence the declination is (according to figure 20) 5° west. This is the grid declination for point M. At point L, on the other hand, the grid declination would be 5° also, but 5° east. In between points M and L, the grid declination would vary between 0° and 5° in value and would be west or east depending upon whether you were west or east of the center line, BN, respectively.

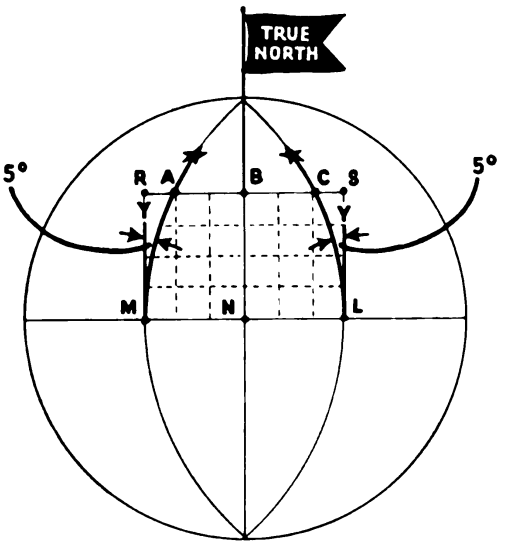



**Figure 20. Grid Declination.**

On a large scale map, grid declination is shown by a diagram giving the value for the center of the sheet. For small scale maps, the grid declination may be given also for each of the four corners. Since the grid system is established and set and true north is also constant, grid declination does not vary with time as does magnetic declination. Thus the map reader does not have to bother about any computations for annual change. Summarizing what has just been discussed, a three-prong diagram with a magnetic declination of 9° W and a grid declination of 6° E would apear as shown in figure 21.

## GRID-MAGNETIC ANGLE

Again usage has brought into being a new quantity. Since the measurement on the ground is in reference to magnetic north and on the map the multiplicity of grid north lines makes the determination of direction easiest in reference to grid

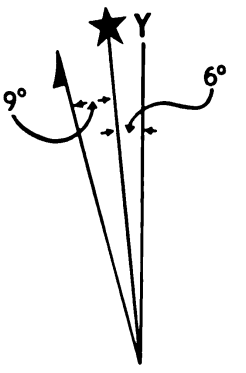



**Figure 21. Grid and Magnetic Declination Symbols.**

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north, a statement of the angle between these two lines would be helpful. This angle is termed grid-magnetic angle or simply GM angle and is the angle between grid and magnetic north. Since true north does not enter into the picture, one of the other two directions has to be the standard from which the third direction's position is given. Grid has been selected because it remains fixed regardless of time. Thus the GM angle in figure 21 is 9° plus 6° or 15°, and since magnetic north is west of grid north, it is expressed as follows: GM angle, 15° W.

Many map interpretation instructors recommend that after the GM angle has been determined, the true north line or arrow be erased and GM angle used exclusively. Newer versions of military maps show GM angle and grid declination; therefore, the maps can be used with no further computation being necessary to determine the value of the GM angle.

### Problems

**Direction—Declinations & Grid-Magnetic Angle:**

10. On a particular map the magnetic declination is 4° 21′ W, the grid declination being 7° 55′ W. What is the GM angle?
11. If the grid declination is 9° E and the GM angle is 4° E, what is the magnetic declination
12. With a magnetic declination of 7° 21′ W and a grid declination of 1° 48′ W, the GM angle would be? Give the correct answer:
13. A notation on the map indicates that "Magnetic declination for center of sheet 7° 43′ E, January 1944. Annual change 12′ West." What will be the magnetic declination in January 1946?
14. A map shows the following: "Magnetic declination at center 5° 08′ W, annual change 18′ W, January 1940." Give the magnetic declination for the center of the map for July 1, 1944.

## AZIMUTH

Many times, in fact, most of the time, the direction a map reader wishes to travel is not north. Instead you wish to move off at a direction which makes an angle with true, magnetic, or grid north. The question now is, "How can the direction of your route be stated?" One answer would be, "By giving the azimuth of the route."

What is azimuth? First, it is an angle and is measured in degrees and fractions thereof, or in mils. Secondly, the angle is between two lines, the line for which we are stating the azimuth and one of the three north directions. Thirdly, the measurement is made in a clockwise direction, the arc starting at the particular north direction chosen and moving clockwise around to the line in question.

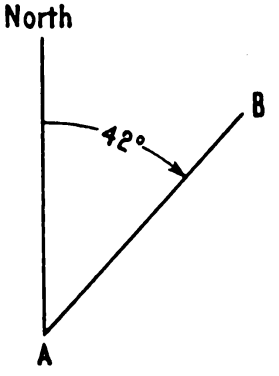



**Figure 22. An Azimuth Angle.**

In figure 22 the azimuth of the line A-B is 42°. Notice that it is measured from north clockwise to the line. An azimuth angle may be any value between 0° and 360°.

**Kinds of Azimuth.** There are as many kinds of azimuth as there are base directions. There is true azimuth, magnetic azimuth, and grid azimuth. Again the particular azimuth measured is a result of usage. On grid-lined maps, the azimuth


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measured is normally grid azimuth. On the ground, since a compass is used to measure the azimuth, magnetic azimuth is the result.

The task of converting one kind of azimuth to another is simple. In order to prevent confusion, it is strongly recommended that complicated rules as to when declinations will be added to this azimuth to get that azimuth, or when they will be subtracted, be omitted. Instead, the following plan is suggested.

Example:

Assume the following conditions:

| | | |
|---|---|---|
| Grid azimuth of line | = | 267° |
| Grid declination | = | 5° W |
| Magnetic declination | = | 7° W |

Requirement. Determine true azimuth and magnetic azimuth.

Place all information on a diagrammatic sketch (Figure 23).

To find true azimuth, examination of figure 23 shows it to be:

267° — 5° = 262°.

To find magnetic azimuth:

262° + 7° = 269°.

**Back Azimuth.** Imagine that you are an officer assigned to a maintenance battalion. You have recently moved into your present bivouac site and are not familiar as yet with the location of the combat units you have been directed to service. For that reason you decide to travel down to XX Corps headquarters to examine the G-3 situation map for the purpose of listing the map locations of these units. You get into your jeep and your driver starts out. It so happens that you are operating in a desert area and can proceed directly across country to Corps headquarters. Prior to starting on your trip you have found that Corps headquarters is about nine miles from your bivouac area and to reach it you are to travel at a

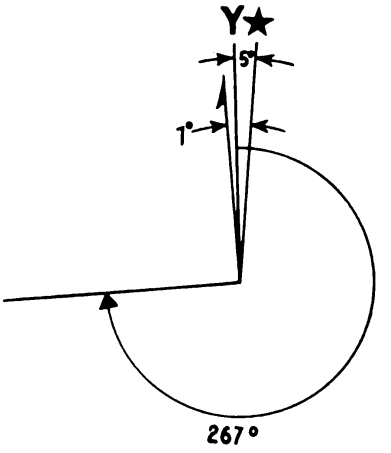



**Figure 23.**

magnetic azimuth of 59°. You follow this course carefully and, after a short period, the tents of Corps headquarters are in sight. Upon arriving at Corps you find that you are going to have to remain there for a longer time than you anticipated. You know that the jeep you came up in is needed back at the bivouac area so you decide to return it and try to find a ride home by some other means later. In order to give the driver his directions as to how to reach camp you must give him the azimuth of the route back to camp. He knows it is a nine mile trip. You can give him this azimuth by computing the back azimuth of your journey from your bivouac to the Corps headquarters. In this case it is done simply by adding 180° to the forward azimuth. In other words, 59° plus 180° equals 239°.

The understanding of what back azimuth actually means appears to be confusing to many soldiers. It is a simple term but it requires the correct view point. To explain it more completely notice figure 24. Assume that you are going to travel from point A, bivouac area, to point B, Corps headquarters. Point A is the starting point and you will reach B by traveling at a magnetic azimuth of 59°.

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You travel at that azimuth, sometimes called the forward azimuth, until you reach point B. To state the direction that you went you can say, "Magnetic azimuth of line A-B is 59°". The back azimuth of line A-B equals the azimuth of A-B plus 180° or 239°. Notice that the line is still viewed from the direction of A to B. Now it happens that the back azimuth of line A-B is equal to the azimuth of the line B-A. What does this mean? Simply that if you erect at point B a magnetic north arrow and were to measure the magnetic azimuth of line B-A, you would find it to be 239°. This is illustrated in figure 24 by the dotted portion of the figure.

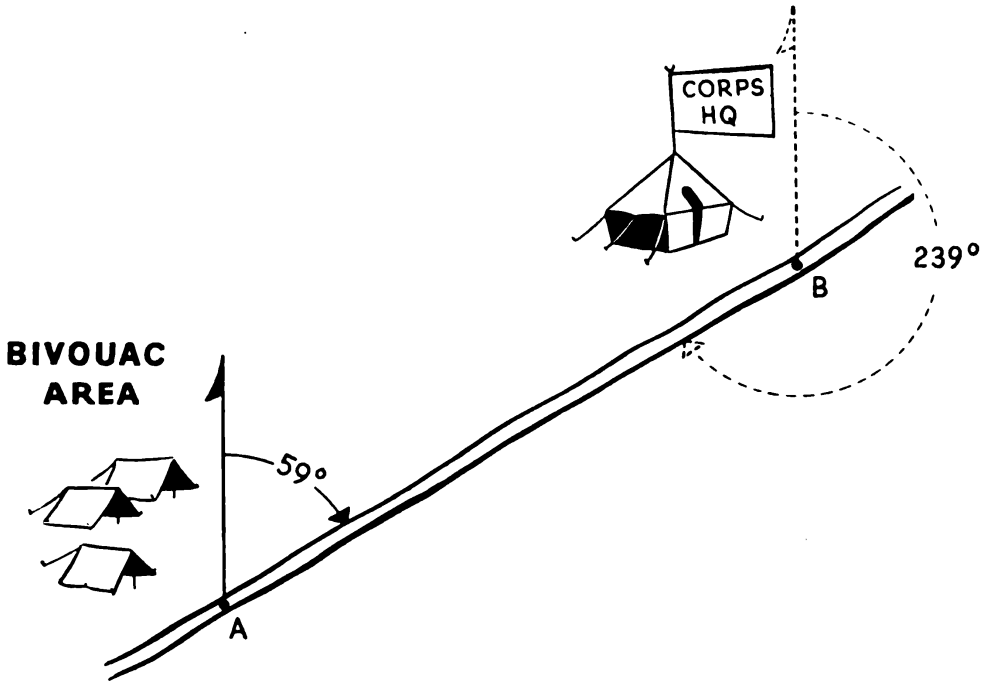



**Figure 24. Back Azimuth.**

In solving problems dealing with azimuth and back azimuth it is recommended that each back azimuth be determined from its corresponding forward azimuth. There are as many back azimuths as there are forward azimuths. For true azimuth, grid azimuth, and magnetic azimuth there exists true back azimuth, grid back azimuth, and magnetic back azimuth respectively. Each should be computed from its corresponding forward azimuth. This is done simply by adding 180° to the forward azimuth if the value is between 0° and 180° and by subtracting 180° from the forward azimuth when it lies between 180° and 360°.

## Problems

**Direction—Azimuth and Back Azimuth**

15. Given the following. Grid declination 2° 11′ W, magnetic declination 17° 08′ E, and grid azimuth of 78°. What is the GM angle, true azimuth, magnetic azimuth, true back azimuth, grid back azimuth, and magnetic back azimuth.

16. You wish to plot an azimuth of 154° as measured by your compass on a map which has shown a grid system. The following information is shown at the bottom of the map sheet: Grid declination, 4° W, GM angle 7° W, annual magnetic change—zero. Which of the azimuths would you compute in order to plot this line on the map? What is its value?

## Problems

**Direction—Azimuth and Back Azimuth Map Problem.** MONTREUIL, 1:50,000

17. What is the grid azimuth of a line connecting the church in ENOCQ (726281) with the church in LONGVILLERS (745333)?

18. You are at the CR in MERLIMONT (659240). You head off across country toward the windmill (736216). The grid declination is 3° E, GM angle 4° W. Give

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the grid azimuth, true azimuth, magnetic azimuth, true back azimuth, grid back azimuth and magnetic back azimuth of your route from the CR to the windmill.

19. Assume you are at the bridge (749288). You wish to travel across country to the road junction (712237). Assume the magnetic declination to be 8° 40′ W. Compute from the map the grid declination at the bridge. Give the magnetic azimuth you would read on your compass in order to determine the direction which you should travel. Having arrived at the road junction (712237), you desire to return to the bridge (749288). What is the magnetic azimuth of your return journey?

## ELEVATION

The third necessary item that must be read by the interpreter of maps has to do with the relative heights of one object or ground feature in respect to another. The height of the ground surface is usually given in reference to mean sea level, being so many feet or meters above or below mean sea level. Since the surface of the sea changes somewhat due to tides, wind, etc., it is necessary to take an average or 'in-between' position for a reference, this being called 'mean sea level.'

The methods of indicating the elevation of various points of ground are numerous. Each again has its advantages. They include spot heights, contours, color bands and hachures.

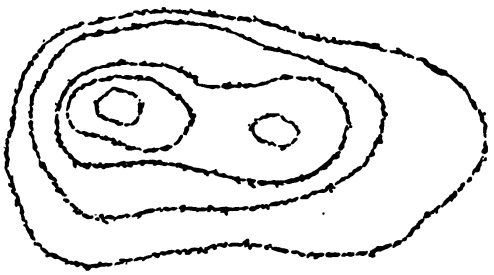


**Figure 25. Contour Lines.**

**Contours.** The man who first devised the system of showing elevation by contour lines performed a great service for map readers. The study of a map of terrain which has been accurately mapped and contoured reveals a huge store of information to an experienced interpreter. Cliffs, slopes, and other land forms are all revealed to the trained eye. In this text, however, only the most useful phases of contours will be discussed and demonstrated.

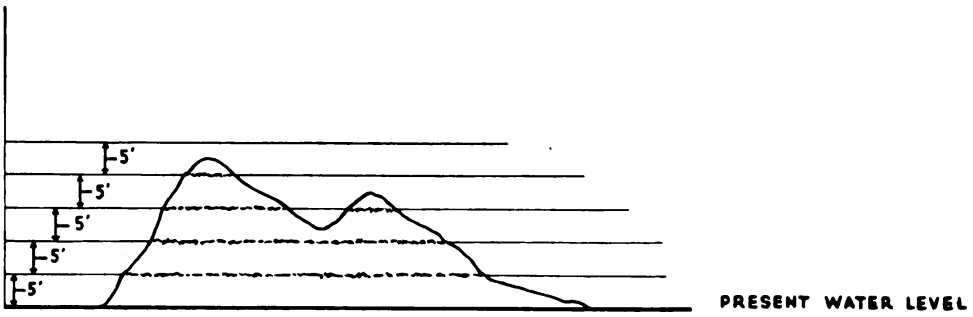



**Figure 26. The Contour Interval.**

As an aid to the student in visualizing contours, imagine a small island in the center of a large lake. The lake has been created by damming off a valley for the purpose of providing water for the irrigation of farms in the valley below. The flow from the lake can be controlled by means of gates. A heavy rain has fallen which has filled the lake to brimming, completely inundating the little island. Water is then drained out of the lake for different farmers, the amount the first farmer took making the water level drop five feet. The water stayed at this level for some little time, permitting debris and refuse to be deposited

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along the shore line encircling the little island. Again water was drained from the lake very rapidly with another five foot drop in the surface of the lake. Again some debris and trash was deposited on the shore. This continued repeatedly, each time the lake dropping five feet until the lake surface reached its normal level. If now you should view the island from above you might see something resembling figure 25 with the lines of debris on the ground showing up as contours.

A profile or side view (figure 26) of the island also shows the lines which indicate a five-foot vertical interval. This vertical interval is often termed the contour interval. The cartographer or map reader draws lines similar to these debris lines on the map for all hills and ridges. The vertical distance between adjacent contours may be more than five feet, generally it is ten or twenty feet or meters. In fact, in very rugged terrain or on maps of small scale, the interval may be as great as fifty or one hundred feet.

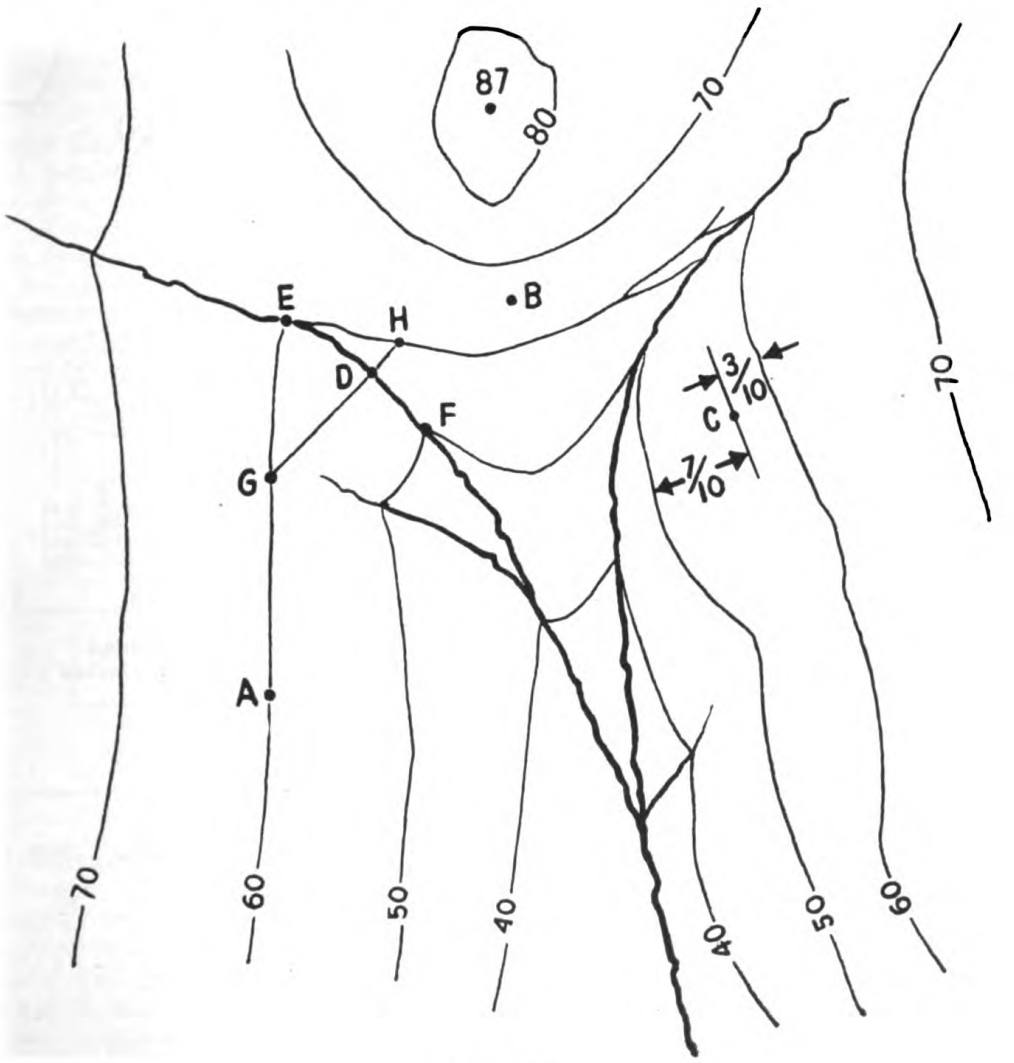



**Figure 27.**

**Measuring Spot Elevation with Contours.** One definition of a contour line is "an imaginary line which connects all points of one elevation". Thus if a point lies on a contour line, such as point A, figure 27, it will have the elevation of the contour, namely 60 feet.

If, however, the point lies between two contours, it is at an elevation somewhere between the two contour values. If, for example, a point lay halfway between the 60 ft. and 70 ft. contour line as point B, figure 27, the elevation would be 65 ft. This is based on the assumption that the ground slopes evenly and regularly between the two contours.

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The elevation of point C, which lies 7/10 of the way from the 50-foot to the 60-foot contour is 57 ft.

Not always does the ground slope regularly between two contours, as in figure 28 (a); it might be as in figure 28 (b) or 28 (c).

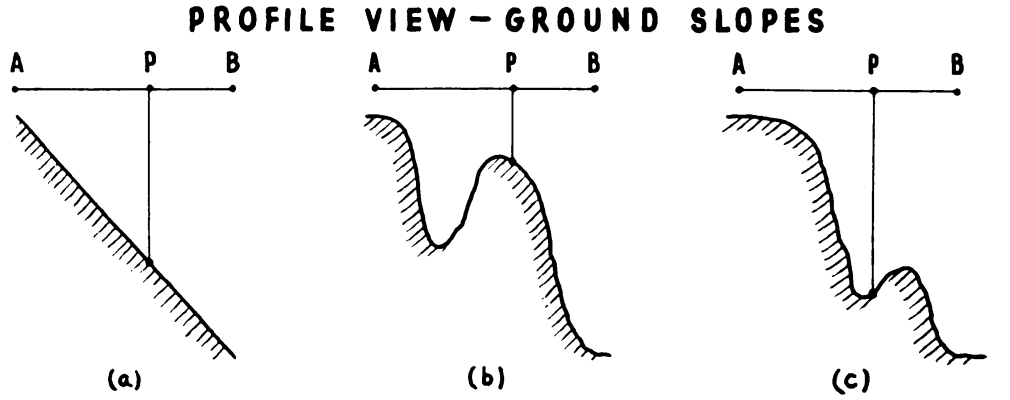



**Figure 28.**

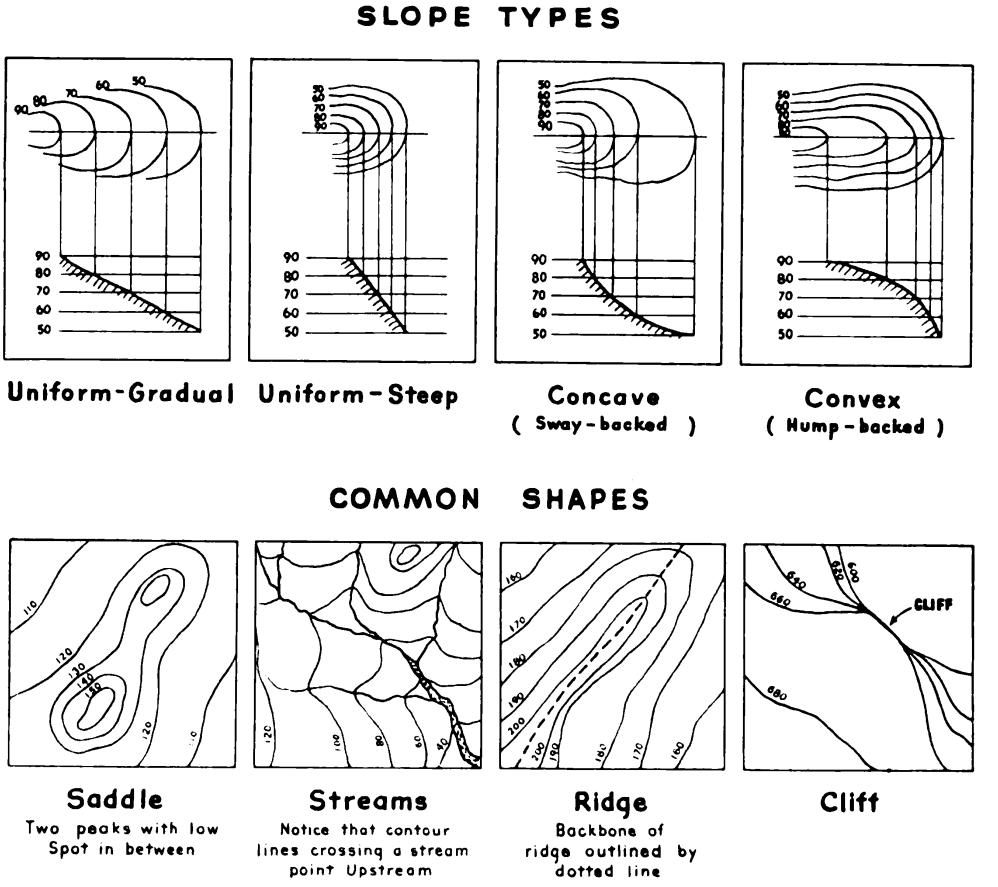



**Figure 29.**

Thus a straight line interpolation is not necessarily correct, but it is the most nearly correct in the greatest number of cases. However, to decrease the inaccuracies which might occur in this interpolation, it is recognized as good practice to interpolate along ridge lines or stream lines whenever possible. This is based on the precept that a stream bed slopes more uniformly than any other land formation and that a ridge line also has a uniform slope. Thus for point D, figure 27,

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you should interpolate between points E and F rather than between G and H or in some other direction. Your answer should be about 54 ft.

**Other Features of Contours.** Certain characteristics of contours are a great aid to the map reader. In figure 29 are shown a number of typical contour groupings together with labelings and, in some cases, profiles.

**Spot Heights.** When this means is used to show elevation certain spots or critical points such as hill tops, road junctions, stream junctions, cross roads, the highest point on a road, crossing over a ridge, etc., are labeled with their heights in feet or meters above mean sea level. Thus the elevation of these points is immediately known without any lengthy process of interpolation. The disadvantage of this means is that only a limited number of points may be labeled; too many would seriously clutter up the map, hiding other features which also should be visible.

It is customary on most maps to use spot heights as well as one or more of the other systems. This makes a very valuable aid to the map reader as it is often necessary that the exact elevation and position of a hilltop or peak be known. Oftentimes this cannot be accurately ascertained by any other means. Spot heights correct this deficiency.

**Color Layers.** A system has been devised which makes use of various colors, or more generally, different shades of the same color, to show differences in elevations of terrain. This system does not permit the accurate determination of elevations at nearly as many points as does the use of contours. Color layers are customarily used in conjunction with the labeling of spot heights. The highest elevation is generally shown in a dark shade of purple. As you proceed to lower levels of elevation the shades of purple decrease in intensity. The lowest elevation, near the coast, is shown with a plain white background. This color layer system is carried farther with the water areas colored in shades of blue, the shallow depths near the shore usually being in a dark shade, the deeper depths being indicated by lighter shades of blue, finally resulting in white at the deepest portion.

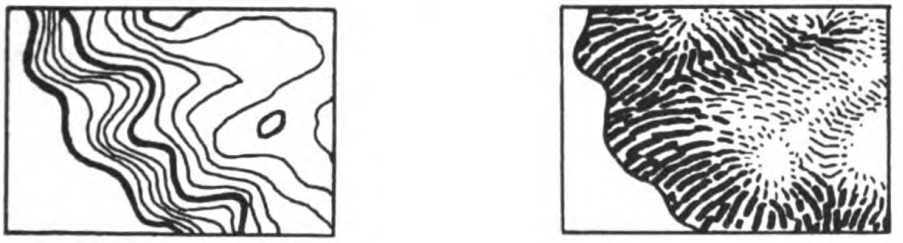



**Figure 30.**

**Hachures.** Hachures as a means of showing elevation is used by the Germans and the French. The U. S. mapping agencies have employed it to a limited extent on strategic maps of an RF, 1:500,000. Figure 30 shows that hachures are simply made up of short straight lines which would run perpendicular to contours if contours had been printed on the map. These short lines are thicker and closer together when the slope is steep, and lighter and farther apart when the slope becomes more gradual. They represent the direction water would flow if rain fell on the hill. Their advantage lies in the fact that hachures seem to represent the appearance of hills or mountains on a map due to the shadow effect created by the great number of lines. The principle disadvantage occurs because exact elevations cannot be determined from hachures. Most of the time they are used with spot heights labeled for the peaks of the hills and mountains and at other critical points. When extensive use is made of them in mapping, especially when the map is made only in black and white, hachures tend to clutter up the map making it very difficult to read other information.

**Visibility.** Map contours can be used for more than just calculating the elevation for a particular ground point. These ingenious little lines, when used by an expert, can be made to perform marvelous feats. Imagine for instance that you

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are thinking of picking the orchard at (820223) on the MONTREUIL sheet for a bivouac area. (See map in folder in back of this volume). Prior to making a reconnaissance in person of the area, you wish to check to see if the area can be seen from an enemy observation post, which you are certain must be located in the windmill on the hilltop at (858252) since that area is still in enemy hands.

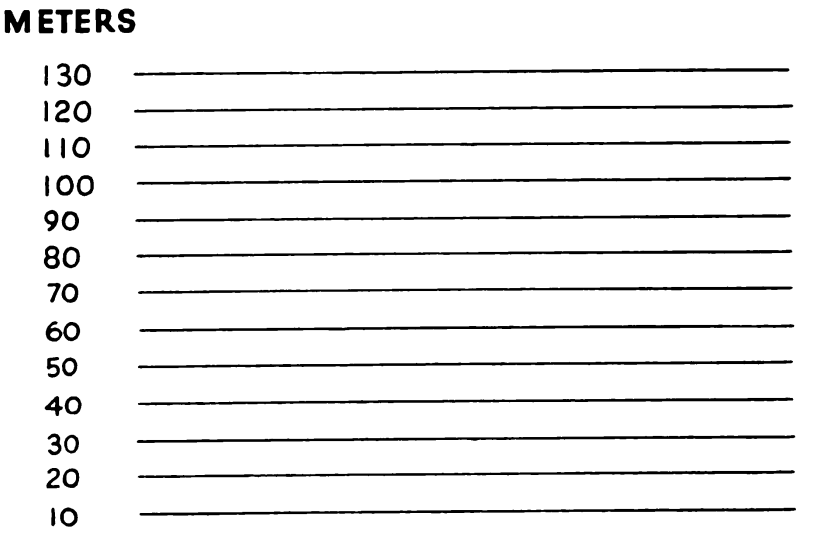



**Figure 31.**

An examination of the map reveals that the observation post of the enemy is at 125 meters elevation. The entrance to the bivouac site is at 15 meters, opposite the roadside cross. This would seem to indicate that the enemy observers would be high enough above you to be able to see the entrance to the bivouac. How can you make certain that they cannot keep you under observation from their position on top of the hill? The answer is by constructing a profile of the ground intervening between the enemy OP and the bivouac site.

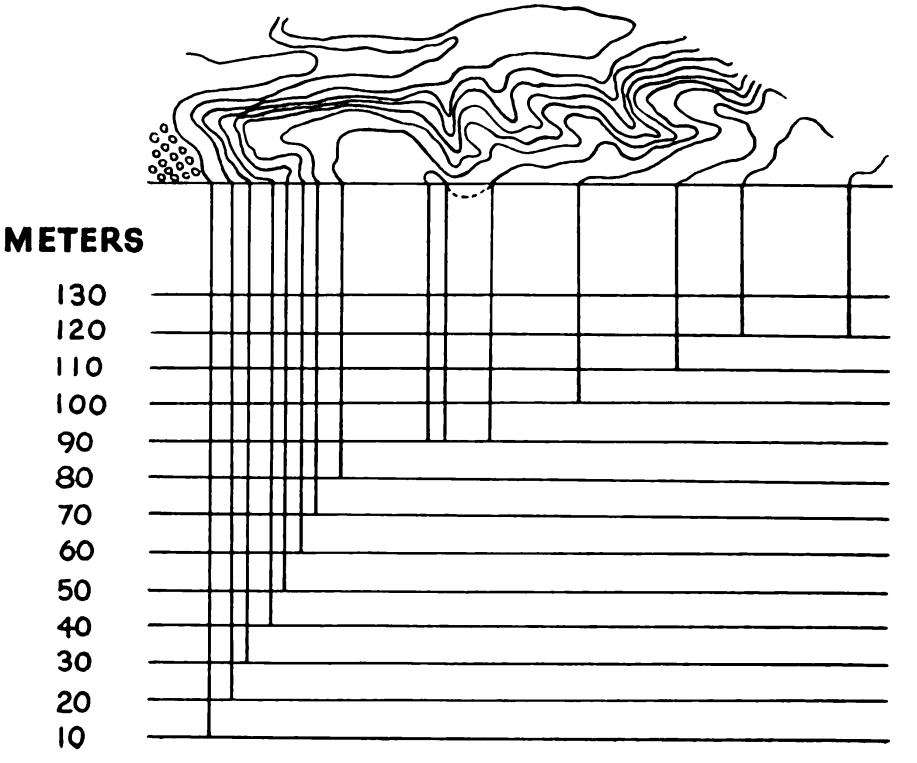



**Figure 32.**

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The above-mentioned profile is constructed by, first, determining the limits of elevation along the line between the OP and the bivouac area. Assume the enemy observer to be in the windmill at a height of 5 meters above the ground. Inspection of the map reveals the maximum height to be 130 meters—the enemy observer's position; the minimum height is 15 meters. Take a piece of lined paper (a little experience will tell you how close the lines on the paper should be for each type of problem) and label the lines as shown in figure 31, labeling one line for each contour line on the map. Since the contours have a vertical interval of 10 meters, the lines on the paper represent elevations of 10 meters apart. On the map, connect the OP with the bivouac site by a straight line. Now place the top edge of the piece of lined paper up next to this straight line on the map. Project the elevation of the OP down to the correct elevation on the lined paper. This elevation is 130 meters and is located by drawing a line from the position of the OP on the map down to the 130 meter position on the lined paper, making sure that this line is perpendicular to the paper's lines. Drop perpendiculars from each of the points where the contours strike the line down to the correct elevations on the lined paper. When you have completed this operation you

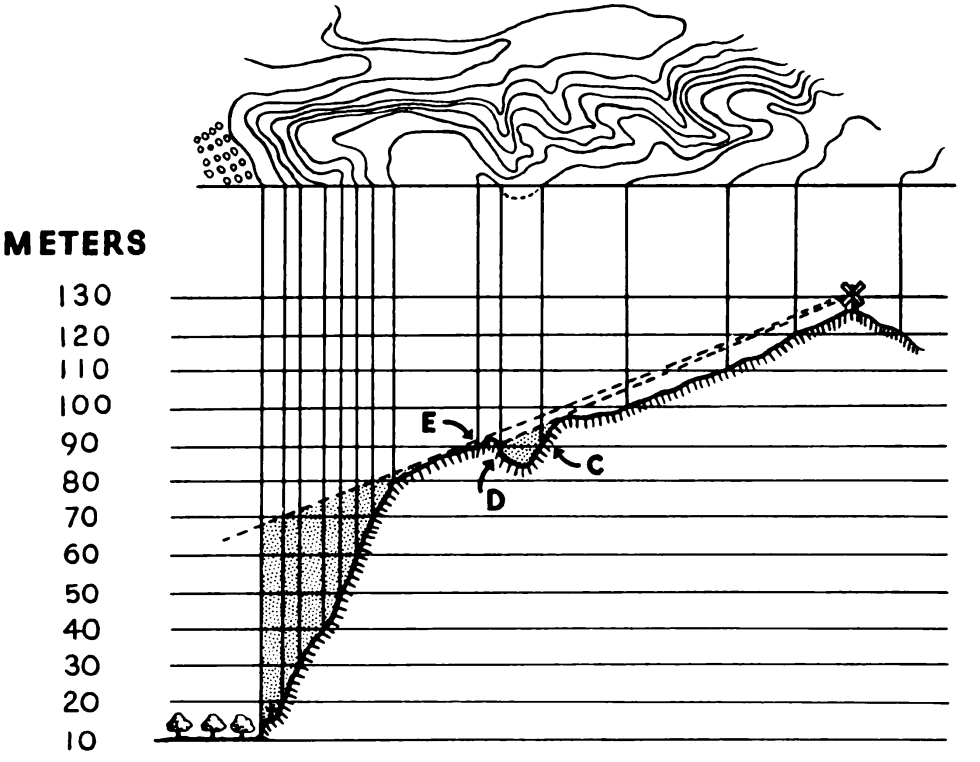



**Figure 33.**

should have something which looks like figure 32. Between the points C and D (these points are both at an elevation of 90 meters) the ground dips down to about 85 meters so the bottom of this depression should be sketched in on the profile. The high point between D and E should also be added. Connecting the various elevations you now have a profile of the ground which lies between the OP and the bivouac site. The sketch should look like figure 33. This profile has the vertical interval magnified greatly, but that in no way prevents its being of use. It may help the reader if he imagines that this profile was made by taking a small scale three-dimensional model of the map and cutting this model in two along the line extending from the OP to the bivouac site. If this cut edge were to be viewed from the side, it would appear somewhat like the outline shown in the profile just constructed. Drawing in a line of sight that an observer might have from his position at the OP you can readily see that the bivouac area is hidden from the view of the observer by the intervening high ground. Areas which the observer cannot see are shown by the shaded areas on figure 33.

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Similar profiles can be constructed along other lines radiating out from the OP. From these, information can be obtained which will enable a map reader to determine all areas visible and those not visible from his observation post.

### Problems

**Elevation—Determination:** MONTREUIL, 1:50,000

20. Give the elevation of the hill (858252) in meters.
21. What is the elevation of the cross roads (807274) in feet?
22. Give the elevation of the bridge (729311) in meters?

## COORDINATE SYSTEMS

A soldier in the U. S. Army may be called upon to serve in any of a number of theaters of operation. Maps of these various theaters have been procured from a tremendous variety of sources. Each nation, in their production of maps and charts, adopts a form of coodinate system to its own suiting. When the Army Map Service prepares maps for issue to troops they may use the existing system printed on the map or they may add a more readable system of their own. The present day map reader should be capable of giving coordinates for at least each of the following systems, U. S. domestic grid, world polyconic grid, British grid, and by geographic coordinates.

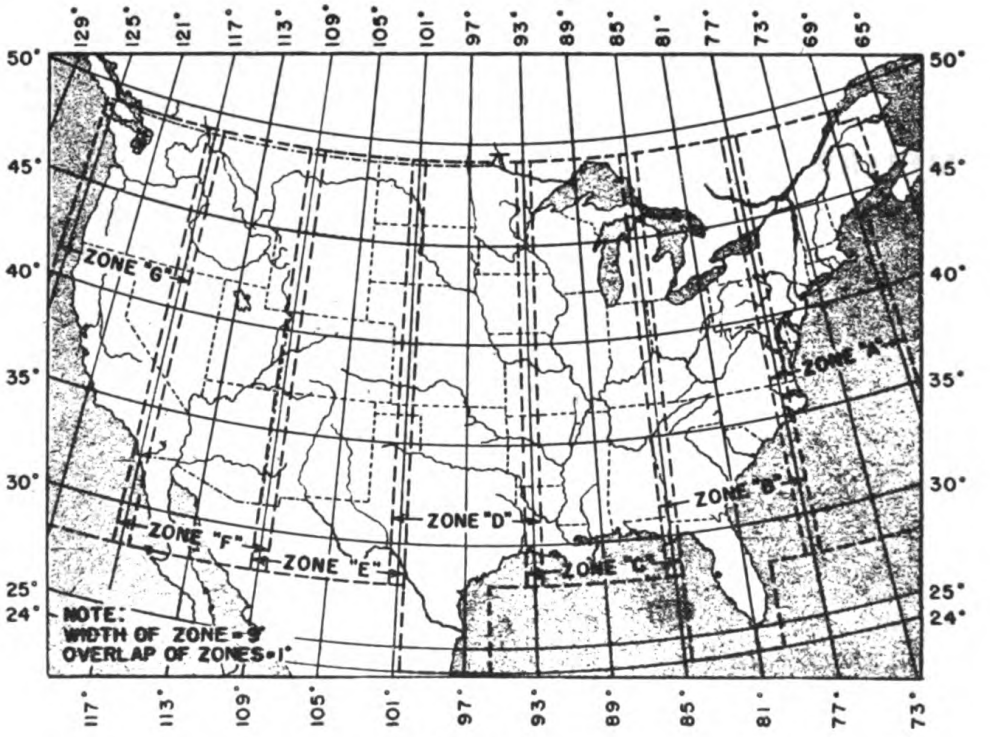



**Figure 34.**

**U. S. Military Grid.** The U. S. domestic grid consists of seven zones running north and south and extending sufficiently far in each of these directions so that they completely cover the northern and southern extremities of the United States. These zones are 9° in width. Each zone overlaps the adjacent zone by one degree, thus the net width of a zone is 8°. The easternmost zone is labeled A, the zone immediately west being B, with finally the 7th and most westerly zone being G. Figure 34 is a sketch showing the approximate areas covered by the zones in this system. The grid system printed on the map sheets falling within any of the zones bears a reference to this U. S. domestic grid. Each zone has an established origin. At the origin, grid north and true north are the same. In other words grid declination is zero at that point.

**World Polyconic Grid.** The world polyconic grid system is apparently an outgrowth of a need for a system of grids to be applied to maps of areas for which

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a grid had not previously been determined. The United States has established only such grids as the U. S. domestic, the Panama, and the Philippine. The British, although they have mapped a great number of countries, still have not covered them all with a grid system. Also many lands and islands still existed for which no system had ever been seriously needed. This system, then, is to cover all of the earth's surface not previously gridded by Great Britain or the United States.

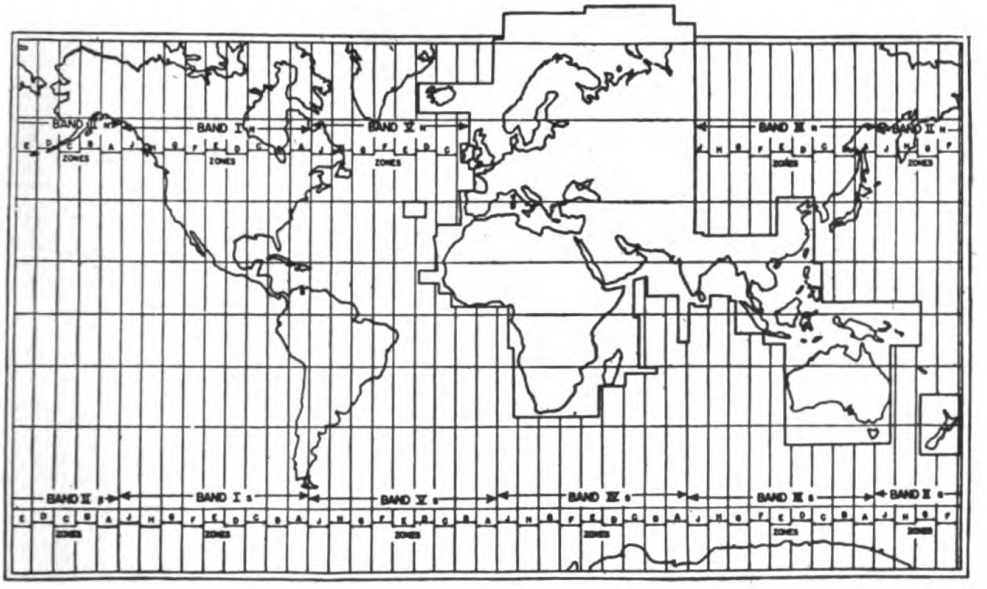


**Figure 35. World Polyconic Grid.**

The basis for the world polyconic grid system (figure 35) is the U. S. domestic grid. Two additional zones labeled H and J have been added to the west edge of the area covered by the U. S. domestic grid. Since each of these zones has a net width of 8° and there are now nine lettered zones, the total width of the area covered is 72°. Furthermore each zone has been extended northward from the equator to 72° north latitude. These nine zones extending from the equator to 72° north latitude have been named band $I_N$. The portion of the earth surface just south of band $I_N$, extending from the equator to 72° south latitude, has been placed in band $I_S$. Similar bands, each 72° of longitude in width, have been established west of bands $I_N$ and $I_S$, the ones immediately adjacent being $II_S$ and $II_N$. Since each of these bands is 72° in width, it takes five of them to completely encircle the earth's 360° of longitude. Thus the westernmost edge of the $V_N$ and $V_S$ bands abutts the easternmost edge of the $I_N$ and $I_S$ zones. Any map of an area for which the British or U. S. have not previously provided a grid may now be provided with a grid which is a part of the world polyconic grid system. Each of the bands is composed of the same nine zones, each of 8° net width, as in the $I_N$ and $I_S$ zones. A reference will be made on the map sheet stating the zone and band within which the particular sheet lies. The grid interval also will be stated on the map sheet and may be 1,000 yards, 5,000 yards, 10,000 yards, etc.

## GEOGRAPHIC COORDINATES

The Geographic Coordinate System has been established for many years and is the one upon which most of the other coordinate systems are based. It consists of a series of lines, one set of which runs true north and south. These lines must necessarily pass through each of the two poles and they run entirely around the earth, being perpendicular to the equator where they cross it. These lines are called meridians. The base meridian, or the one from which measurement starts, is termed the prime meridian or Greenwich meridian as it passes through Greenwich, a suburb of London. At this suburb, several centuries ago, an observatory was established by one of the rulers of Great Britain. Measurements of

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position have been made in relation to a north and south line passing through this observatory for hundreds of years. These meridians are used to measure longitude, the value at the prime meridian being zero. As we go to the west from the north and south line through Greenwich we move into a region of west longitude. In other words, our position could be given as 25° west longitude, 105° west longitude, or on up to a maximum value of 180° west longitude. Similarly, we can move east from the prime meridian into a region of east longitude having

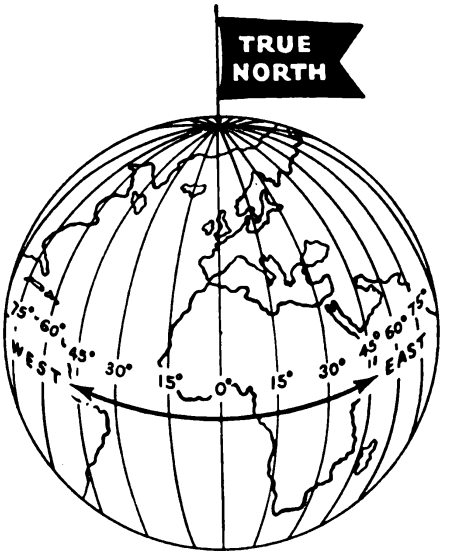



**Figure 36. Meridians of Longitude.**

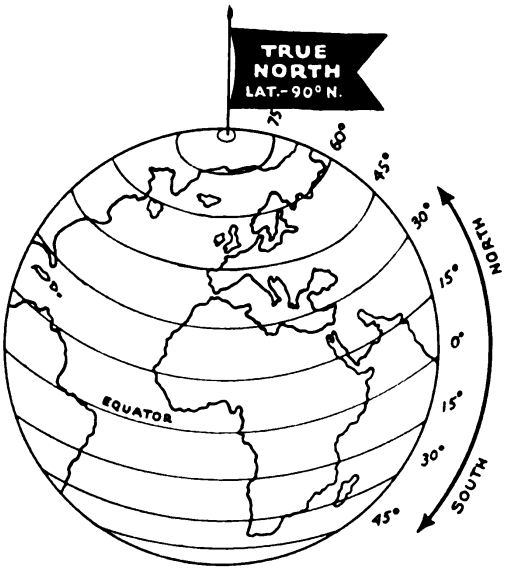



**Figure 37. Parallels of Latitude.**

any values between zero and 180° east longitude. Study of figure 36 shows that the meridians of longitude are not the same distance apart throughout their entire length. They are at a maximum distance apart at the equator and as one moves either north or south they become closer together, finally converging at the Poles. The Mercator projection has the characteristic of making the meridians of longitude parallel throughout their entire length, a distortion inherent in this projection.

The second series of lines runs true east and west and encircles the earth's sphere. The circle having the largest diameter is the equator, the base from which latitude

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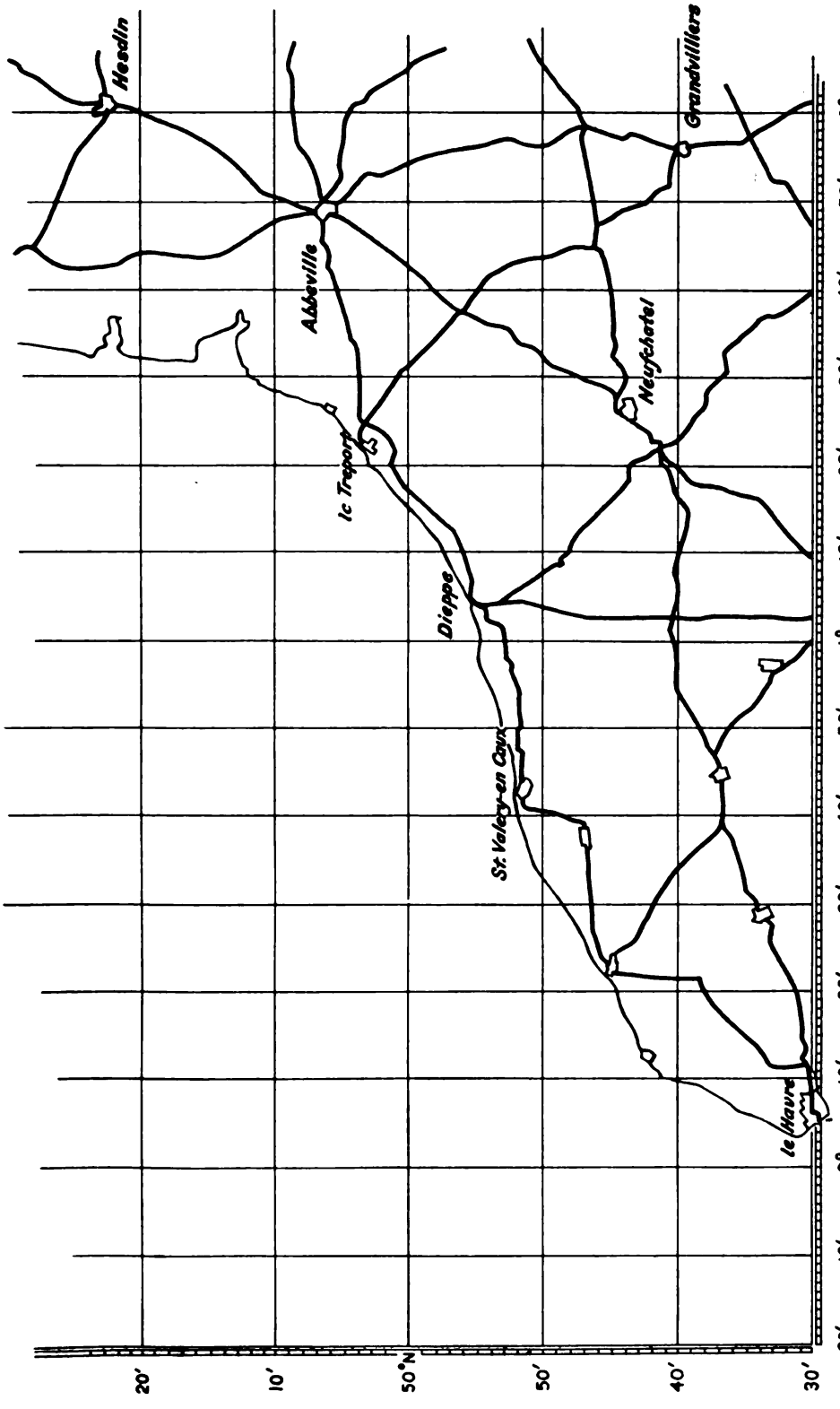



Figure 38.

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is measured. These lines of latitude are called parallels since they are all parallel to one another throughout their entire length. Latitude is measured north and south from the equator, the value at the equator being zero. Figure 37 shows the latitude circles decreasing in size as one proceeds either north or south from the equator, finally becoming points at the two poles. One can move from the equator in a northerly direction and in such a journey will pass through points having latitude values of 10° north latitude, 30° north latitude, 69° north latitude, on up to a maximum of 90° north latitude which will place him at the geographic north pole. In a like manner, one can travel in a southerly direction passing through similar points of south latitude, with again the maximum value of 90° south latitude marking his position at the south pole.

To give a geographic coordinate reference it is customary to give the latitude reading first, although if such is not done no confusion will result. Practically all maps have some reference to geographic coordinates on them. Large scale maps which show only a small land area, perhaps one no greater than fifteen minutes of longitude wide and the same value of latitude long, give the geographic coordinates only for the corners or possibly three or four points along each side. It is impracticable to attempt to identify specific points such as road junctions, churches, bridges, etc., by geographic coordinates. On smaller scale maps however, such as 1:500,000, the geographic coordinates system may be the only one printed. In this instance its use is feasible for giving a reading to an accuracy of one minute, as it will usually definitely identify a point such as a town, city, airdrome, or river. In figure 38 the geographic coordinate reading for the city of Dieppe is 49° 55′ N Latitude, 1° 04′ E Longitude. The latitude was specified first and then the longitude. It is good practice to state the words 'latitude' and 'longitude' when giving the reading, although it is not absolutely necessary, since the inclusion of the N for north and the S for south definitely identifies a figure as being latitude, while the E or W would identify the other figure as longitude. There can be no such thing as east or west latitude or north and south longitude. On some maps the meridians and parallels are not always printed all the way across the map. Instead, labeled ticks are shown on the margin which must be connected by the map reader in order to determine a geographic coordinate reference.

Additional geographic coordinate references:

ABBEVILLE—Latitude 50° 07′ N; Longitude 1° 49′ E.
GRANDVILLIERS—Latitude 49° 40′ N; Longitude 1° 56′ E.
HESDIN—Latitude 50° 23′ N; Longitude 2° 01′ E.

### Problems

**Geographic Coordinates:** MONTREUIL, 1:50,000

23. What is located at latitude 50° 27′ N, longitude 01° 50′ E?

(Note: Notice the markings along each edge of the MONTRUIL Sheet. Along the left edge of the map appears 50° 25′, 50° 30′, and 50° 35′ north latitude. A border runs around the map which is divided into one-minute increments. To determine a value of latitude on this map it is necessary to connect the same marks on the west and on the east border of the sheet with straight lines. You cannot use the printed grid lines on the map. They are not parallel to parallels of latitude. A similar process is used to obtain the longitude reading for a point, except that vertical lines must be drawn between points of the same longitude as labeled along the top and the bottom edges of the map sheet.)

24. Give the geographic coordinates for the church in MERLIMONT PLAGE (6324) to the nearest minute.

25. What are the geographic coordinates for the watermill (787318) to the nearest minute?

## BRITISH GRID

When operating in certain areas of the globe, a soldier's map will very likely be one for which the master copy was obtained from Great Britain. In many instances, the Army Map Service (Corps of Engineers), may add little additional information, turning out copies very much the same as those the British tommies themselves will use. One feature which would probably not be changed is the coordinate system printed on the map sheets. This coordinate system would most likely be the British grid.

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It is British practice to establish certain grid zones or belts following political boundaries of countries or territories. These zones or belts are named after the country covered, as: French Northwest Africa Zone, Libya Zone, etc. A color is assigned to a zone. All references to the grid zone, on the map, are in that color. The area, or zone in question, is divided up into a number of squares. One size square used has the dimension of 100,000 meters (100 Km) on the side. If the country is large, 25 of these squares of 100,000 meters in length of side are grouped into a larger square of 500,000 meters (500 Km) on a side. The diagram, figure 39, shows the relationship of the smaller squares. If a zone is large, a

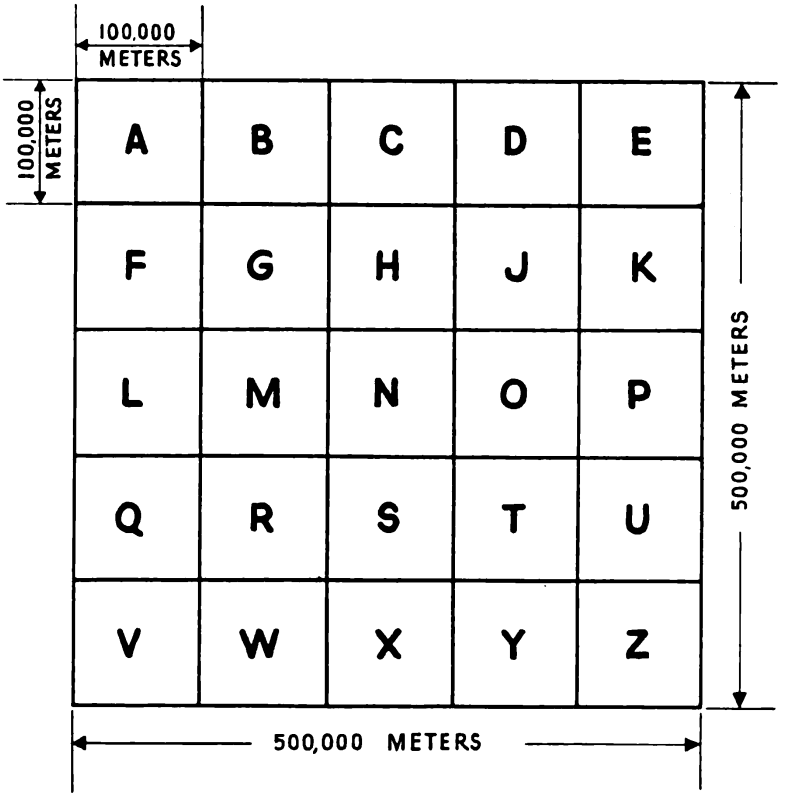



**Figure 39. The British Grid.**

number of the 500,000 meter squares may have to be employed to get complete coverage. (Figure 40). Notice that the 500,000 meter squares bear the same letter relationship one to another, as do the 100,000 meter squares within each 500,000 meter square. (Note: A limited number of zones exist with grid squares of dimensions of 500,000 *yards* and 100,000 *yards*, instead of meters.)

To give a grid reference by this system, say for example, Sidi-Bel-Abbes, figure 41, first give the letter for the 500,000 meter grid square in which Sidi-Bel-Abbes lies. This happens to be R. Next locate the letter for the particular 100,000 meter grid square (within the 500,000 meter R square) in which the city is located. This is U. Write U after the R, the result being RU. You are narrowing down the area in which point A can possibly lie. The rule 'read—right—up' still applies. Read from left to right, estimating to hundredths. Then read *up* to hundredths. This is written after the RU as 'RU4232.' Notice that no dash is used and that the decimal points are omitted. Other readings on the same figure are:

Tlemcen (RY8199) Oran (RU4288) Am-Temouchent (RT9644)

It is common practice to give an example of how to give a grid reference on a particular map in a small box in the margin of that map. Figure 42 illustrates the practice. There are some slight variations from the above, but always the decimal points and dash are omitted.

Generally the instructions, grid line markings, etc., all appear in the grid color which has been established for the particular zone. The French Northwest Africa Grid Zone color is purple.

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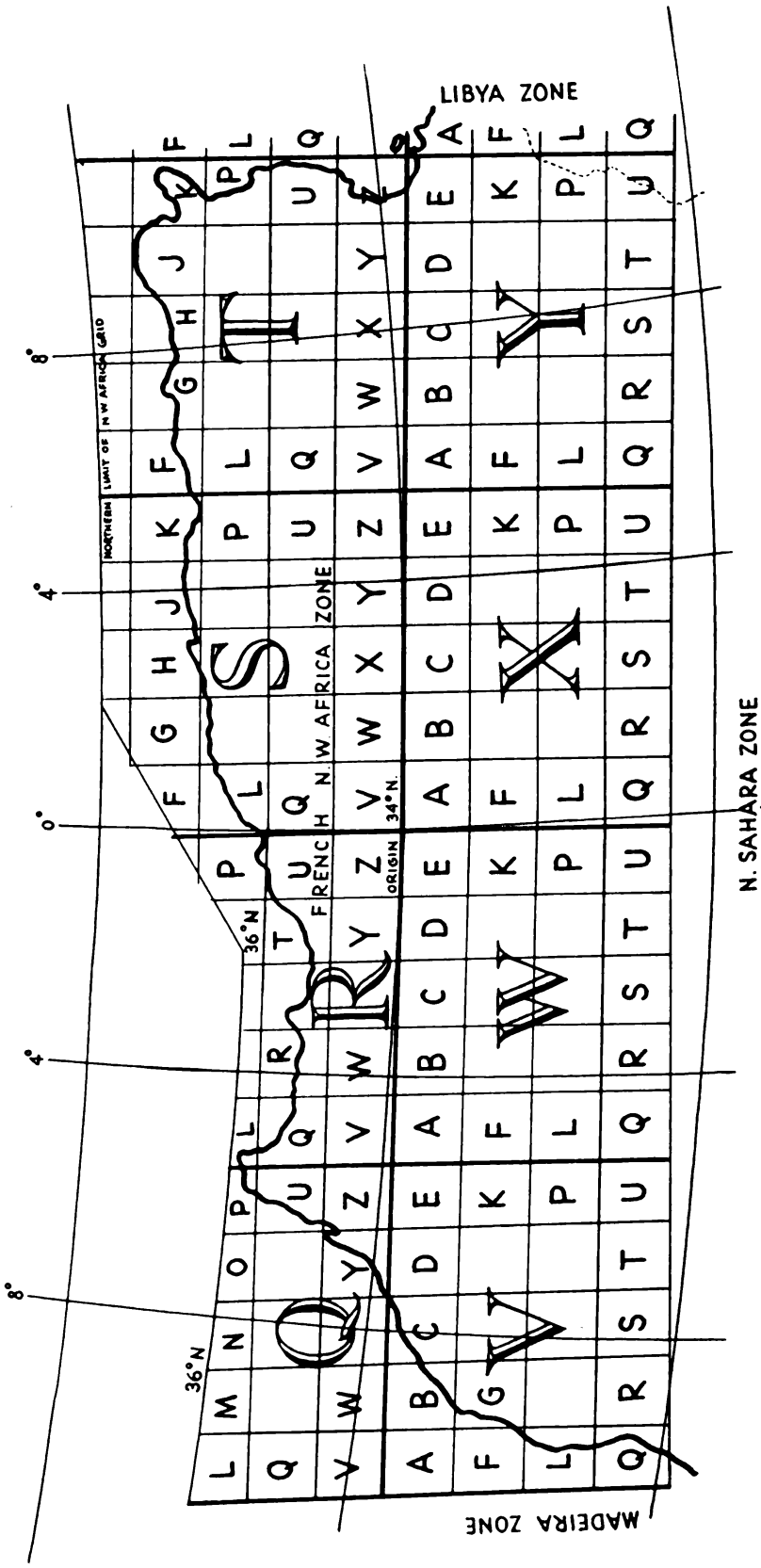



Figure 40.

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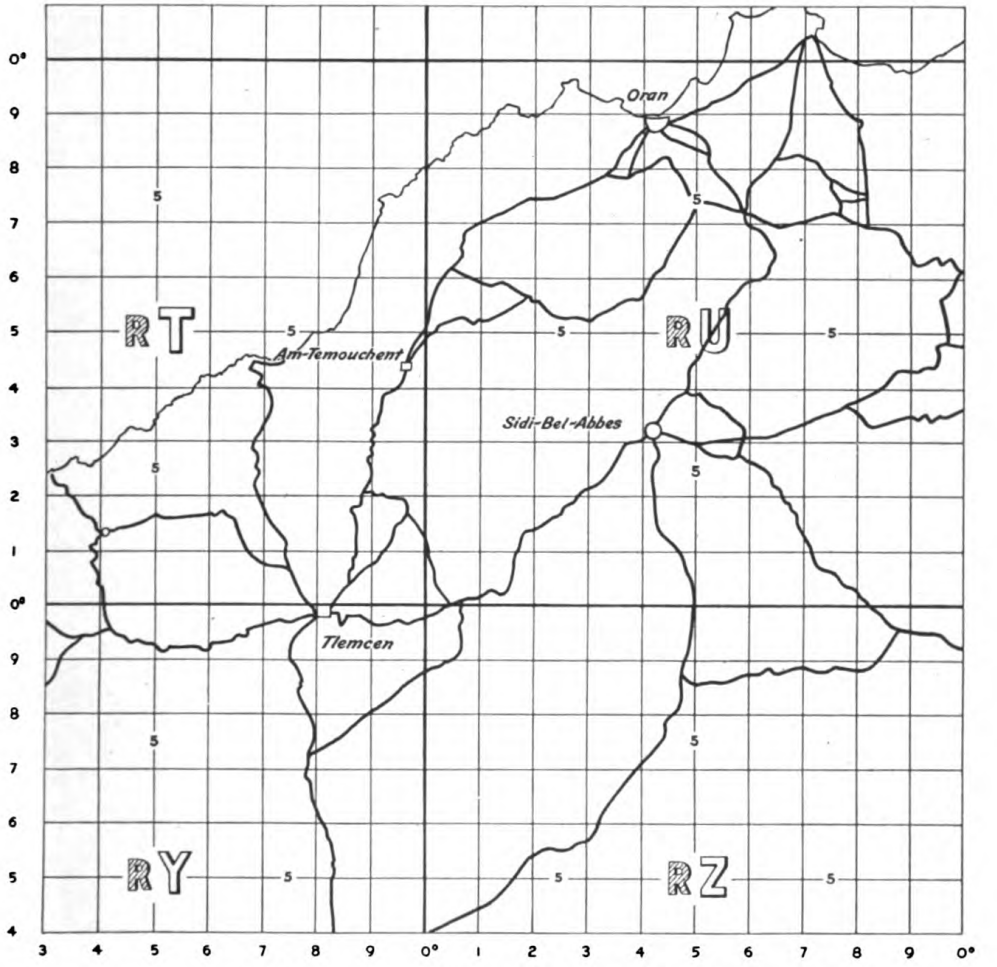



**Figure 41.**

**TO GIVE A GRID REFERENCE ON THIS SHEET**

Use only LARGER Grid figures viz. ..... 280000

POINT **CHANZY**

LETTER *From face of map* ..... RU .....

EASTINGS.

*Take figure of West edge of small square in which point lies* ..... 3
*Estimate tenths eastwards* ..... 4

NORTHINGS. 34

*Take figure of South edge of small square in which point lies* ..... 0
*Estimate tenths northwards* ..... 6

REFERENCE ..... RU3406 ..... 06

Unit... metre Square... 10000 Reference to nearest ..1000

**Figure 42.**

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One advantage of the British Grid is that a reference may be given on a map, say to a scale of 1:500,000, for an object on the ground and if it becomes necessary instead to use a map of an RF of 1:50,000 also equipped with the British grid, the same reference applies and the point can be located.

## THE MAP TEMPLATE

The map template is a device which reportedly was developed by units which needed a rapid means for giving a map reference in fast moving action. Often too, a reference must be given on a map which has no grid system overprinted on it. The map template was the answer to the problem.

The template has an additional advantage which is built into it. If reference is given on the template, even if it should be stated in clear text over the radio and intercepted by the enemy, it will mean nothing to the enemy if proper security means are observed in announcing the placement of the template.

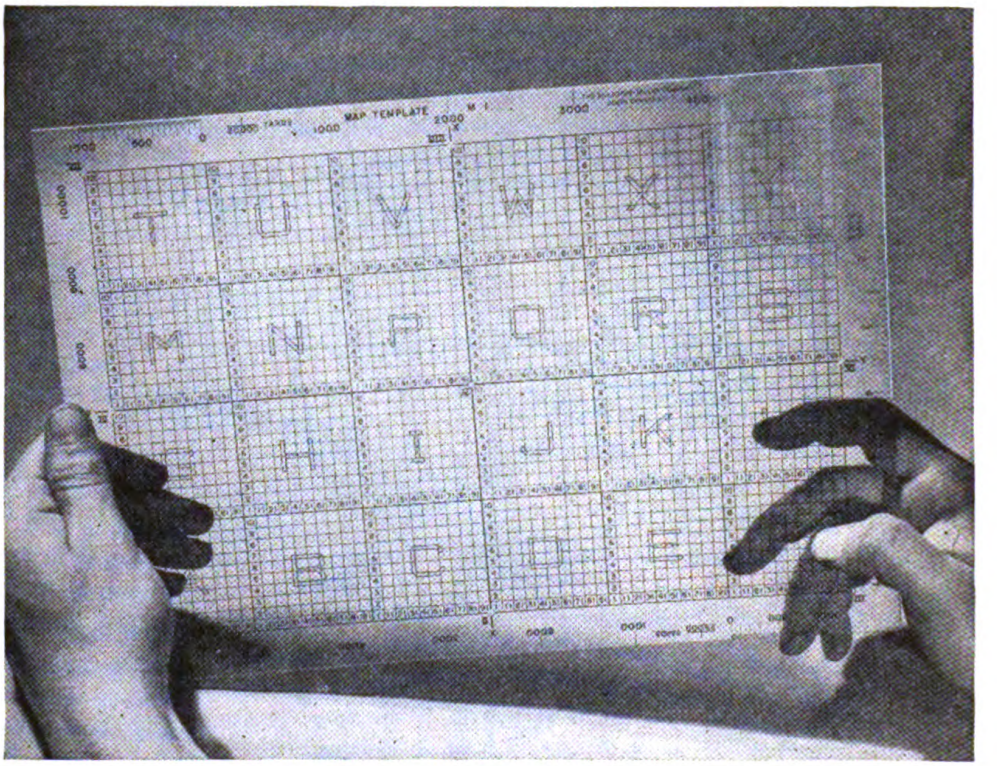



**Figure 43. The M1 Map Template.**

Look at figure 43 which shows the M1 map template. A new version of the template has been issued known as the M2. It is identical in size and shape to the M1; however, many of the horizontal lines and vertical lines have been omitted. It was found that the M1 with its overabundance of parallel lines tended to make the reading of a map through the template a difficult matter.

The M1 template consists of 24 lettered squares, the lower left-hand square being the 'A' square. Each of the squares is of the same size. The overall dimension of the template is 8½ x 12¼ inches. It is made of transparent plastic with the lines, figures, and letters in black. Closer examination of one of the lettered squares (take for example the 'A' square) reveals that it has been subdivided into 100 small squares each of identical size. The left-hand row of these smaller squares begins with the number 1 square in the lower left hand corner of the lettered square. Above it are the 2, 3, 4, etc. squares finally ending with the 10 square at the top of the column. Moving to the right one row from the left hand column, the bottom square is the 11 square. Above it are 12, 13, 14, etc., terminating in the 20 square at the top. The next row over is the 20 row, running from 21 through 30. This continues until the farthest right row in the 'A' square starts with 91 at the bottom and ends in 100 at the top.

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To use the template, it first must be oriented. This can be done in a number of ways. Initially, it should be apparent, that all persons giving a map reference by means of the map template must be using copies of the same map. Assuming this to be the case, each person using the template must place it in the same position on the map as every other person using the template. The large holes punched in the template numbered with Roman numerals, I, II, III, etc., may be used to orient the map by selecting two points on the map which lie beneath the template, identifying these points and then stating the map template coordinate readings which are to be placed over the points. It is well to select two exact map points which can be readily located and identified. Good examples of such points are: symbols for churches, school houses, cross roads, road junctions, bench

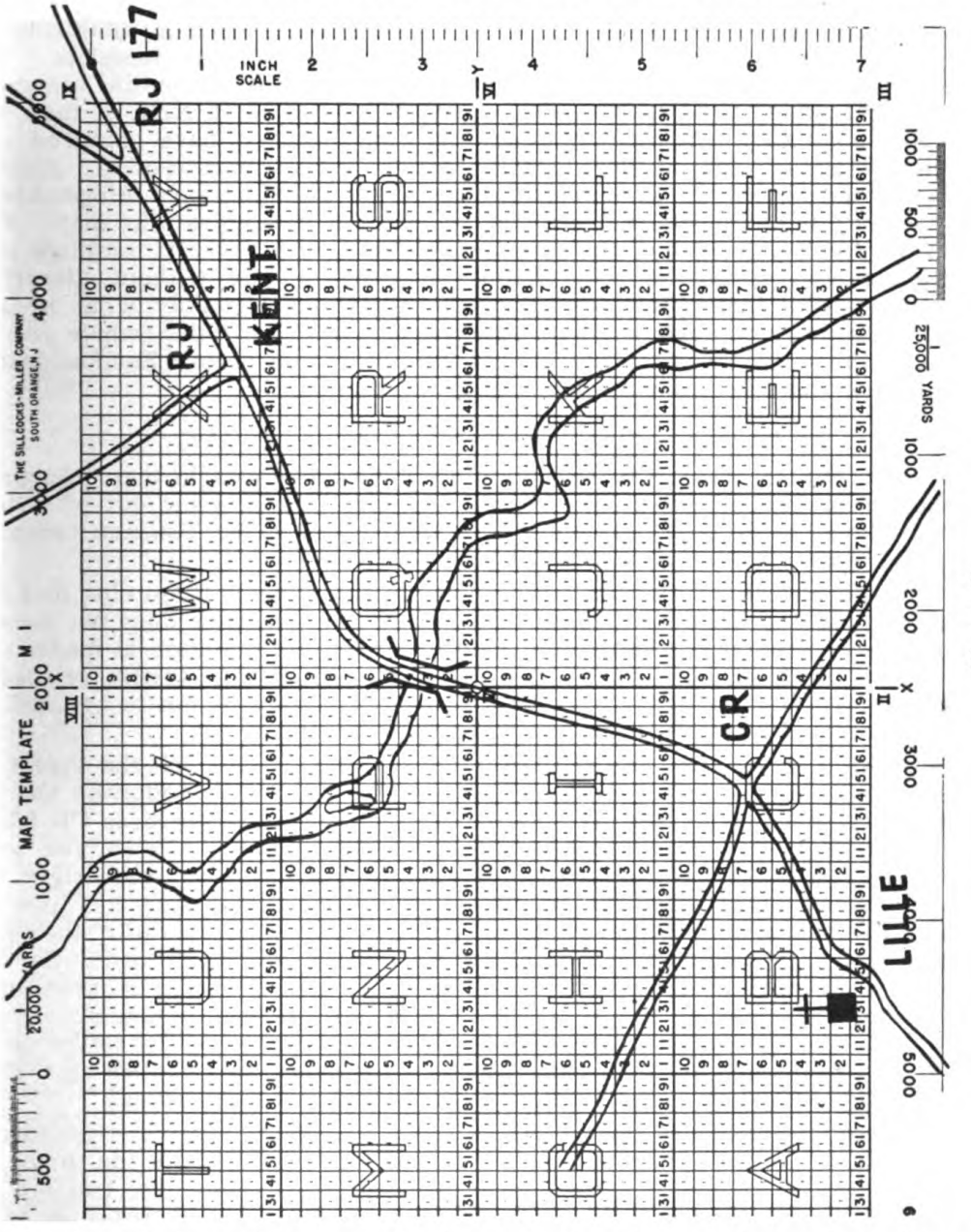



Figure 44.

marks, triangulation points, etc. In figure 44 the map template orientation could be stated, "Place Y68 over RJ 177 and B32 over the church in the town of LILLE." When this is done by all parties using the template, all will be oriented in an identical manner. It may be necessary to further identify RJ 177 or the church in LILLE on a map. This can be done by giving their map coordinates, if such is possible.

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Now to use the template. If some one told you to proceed to C47, what would you do? Locate the lettered C square, then the 47th smaller square within the C square. What would you find? A crossroad. Correct. If you were to give the map template coordinate for the bridge, what would you give? The correct template coordinate would be Q4.

A word of caution in the use of the template might well be inserted at this time. It was mentioned previously that map template coordinates might be given in the clear over the radio, and even if the enemy intercepted the message, they would be of no value to him. That is, they will be of no value to him if proper precautions are observed. The first of these precautions is in the distribution of the map template orientation. It must be put out by secret means, preferably by secret document. If it is necessary to transmit it over the radio, it first should be coded. The second precaution is, that after the orientation is established by secret means, not to reveal that orientation by misuse of the template. Such misuse can occur if, for example, an unthinking soldier states in the clear over the radio that some one is to "proceed to the road junction in Kent at map template coordinate X63." Without a doubt the enemy would have captured some of our templates or otherwise obtained the details of their construction. After he had intercepted several of such messages he would have enough information to orient the map template himself, provided he also had a copy of our map. From then on the security feature of the map template is lost, as, even if template readings are correctly given (that is, stating just the reading without identifying further what is at that point), the enemy can determine readily what is being located. Thus, never identify an object by name or description when you are also giving the template coordinate in the clear over the radio. Such a practice defeats one of the inherent advantages of the template.

## THE THRUST LINE

As is generally the case with most techniques and methods in map interpretation, the thrust line or 'Stosslenie' as the Germans call it, grew out of a need. The thrust line was used extensively by German troops in the Tunisian campaign. British and American troops also employ it.

The advantages of the thrust line are somewhat the same as those obtained from the map template, with the additional advantage that the user does not need to have and carry around the sheet of plastic of which the template is made. The thrust line is used on maps which have no usable coordinate system printed on them or, for security reasons, the existing coordinate system is not to be used and some other method must be employed to designate points.

To establish a thrust line, an origin must be selected from which the thrust line is assumed to start. In figure 45 the origin is RJ 34. To further identify the line, a second point must be given. This second point has been selected as CR 56. In traveling along the line from the origin to the second point at CR 56, you would be going in the FORWARD direction. Traveling the line from the origin in a direction directly away from the second point would be traveling the line in a BACKWARD direction. One more thing must be stated to establish the thrust line—the unit in which the measurement is to be made when using the line. This could be in miles, yards, or kilometers on the ground, whatever is agreed upon. The Germans were making use of centimeters and measuring the distance directly on the map. In the example, assume the unit of measure to be miles on the ground. Summing up, the statement which is necessary to establish this thrust line is; "Establish thrust line RF 34—CR 56; unit of measure—miles."

To give a reference by the thrust line for the small bridge, drop a perpendicular from the symbol for the bridge to the thrust line. Measuring along the thrust line from the origin to the point where the perpendicular hits the line, you see that it is 1.6 miles. Measuring along the perpendicular from the thrust line to the symbol the distance is 3.7 miles. Considering yourself standing at the origin and facing towards the second point which was used to establish the line, you notice that the bridge lies to your right. Thus, the thrust line coordinate for the bridge is "F16R37." This means simply that the bridge lies forward from the origin 1.6 miles and to the right of the thrust line 3.7 miles. It is customary to read distances to the nearest tenth of the unit when the unit is the mile or the kilometer.

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The writing of the decimal point is eliminated. If a point lies to the left of the thrust line, again with the reader standing at the origin and facing towards the second point such as the symbol for the church in figure 45, the thrust line coordinate would be F23L17 (forward 2.3 miles, left 1.7 miles). When a point lies back of the origin, as does CR 99, the thrust line coordinate would be B24R26, *i.e.*, backward 2.4 miles, right 2.6 miles. Notice again, that right is always the same, being to the reader's right when he imagines himself standing at the origin and facing the second point which designates the thrust line.

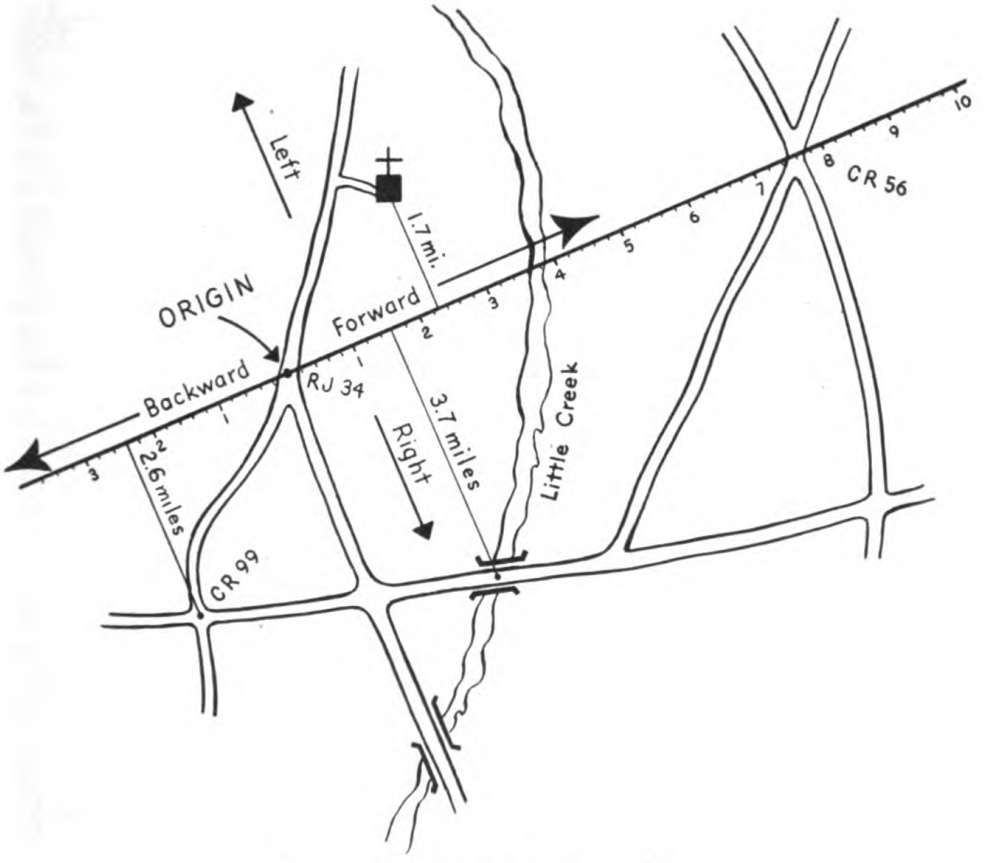



**Figure 45. Using the Thrust Line.**

Distances also may be measured in kilometers, meters, or yards. Using the kilometer, distances are scaled to the nearest tenth and the coordinate is written without a decimal point. Using the yard or meter, distances are scaled to the nearest hundred, and the coordinate is written to the nearest whole number of hundred yards or meters.

In establishing the thrust line, it is generally selected to run in the direction of intended advance, in other words, towards the enemy. It runs on indefinitely, running all the way across the map. For security reasons, it is changed at irregular and frequent intervals. Thus, if the thrust line is used to give references in the clear over radio and the enemy intercepts such messages, even though, after a time, they break down your thrust line system, you can change the direction of the line, or the unit of measure employed, and the enemy's information is of no value to him.

As was the case with the map template, certain precautions must be observed. Again the establishment of the thrust line must be by secret means. Users of the thrust line must be careful that they do not identify an object by naming or describing it so that the enemy too can identify it, and then give its thrust line coordinate in the same breath. Such a practice permits the enemy to break down the thrust line so that the security feature of the system becomes lost.

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## MILITARY SYMBOLS

The material on military symbols embodied in this text is brief due to limited space. The reader is referred to FM 21-30 for a much more complete treatment of the subject. In Appendix II, certain of the more commonly used symbols have been included for the ready reference of the reader. The development of the troop unit or supply installation symbol has been a logical one, the various families of symbols generally growing one out of the other. In certain foreign maps the consistency observed by the map maker is not as universal as is the case of U. S. cartographers. To demonstrate briefly how simple a matter it is to construct the symbol for a unit, say a section of infantry, examine carefully figure 46. Notice

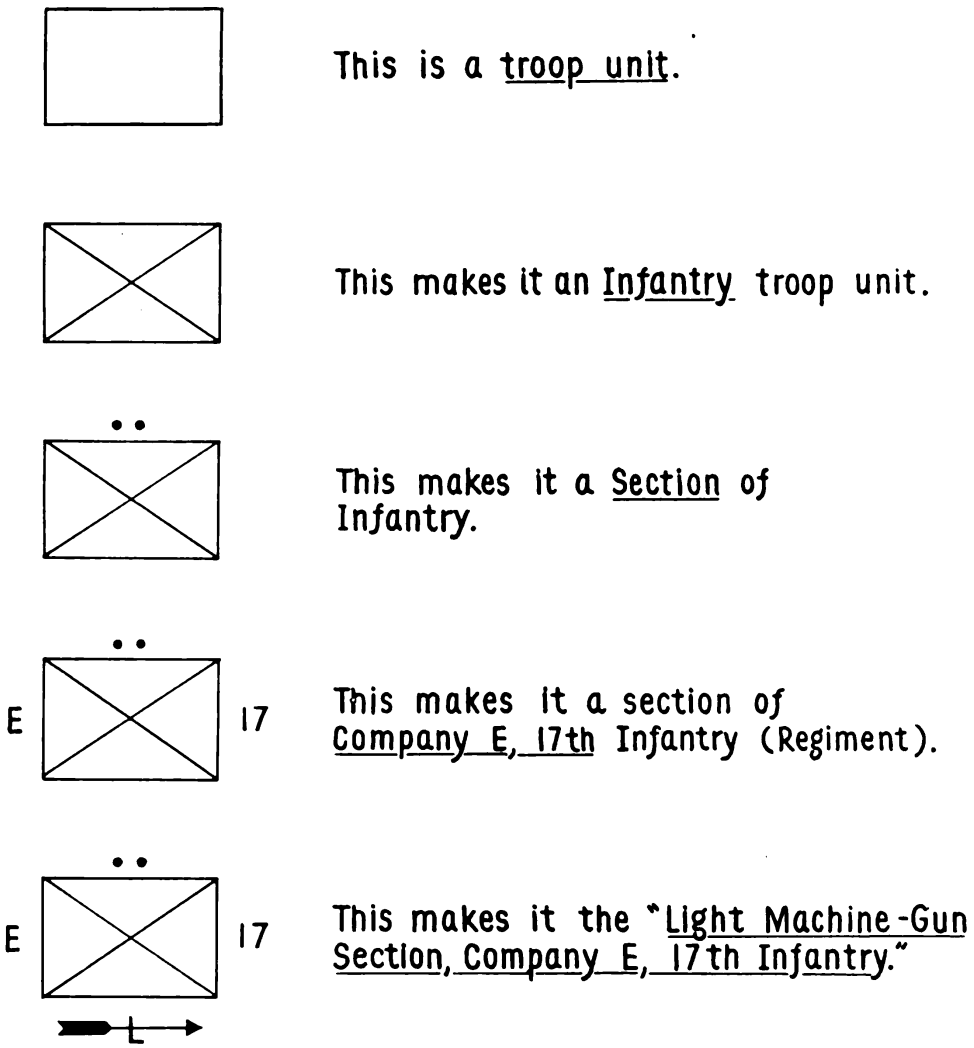



**Figure 46. The Evolution of Symbols.**

that you start out with a simple square or box which represents a troop unit; in other words, a body of men organized and trained for a specific job and position in the army. Adding a little information within the box tells the arm or service to which the men belong. The symbol above the box indicates the size of the unit, the figures to the right and left of the box indicate the unit's letter and numerical designation, and finally the weapon with which the unit is equipped may be placed beneath the square. In order that all map readers may speak the same language, FM 21-30, "Conventional Signs, Military Symbols, and Abbreviations," has been published as a guide. It does not include all of the possible units. The map reader, following its guidance, can, however, construct any troop unit symbol he may have occasion to need.

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## FIELD MAP READING

**General.** You will not always have available all the devices and means which can assist you in reading maps and photographs. Many will be the times when you will have to rely on your own ingenuity and ability to improvise. It is the purpose of the following few paragraphs to develop in some detail a few of the practices which have proved of aid to map readers in the field.

**Determination of Stride.** When measuring the distances between points on the ground in making a sketch you may not always have a steel tape to measure each distance. You may have to rely upon your own two legs as the means of measuring distance. Pacing or striding can be very accurate when properly done. It is possible to construct a graphic scale to a given RF which is graduated in paces or strides. A pace is one step while a stride consists of two steps. It is generally easier to count strides rather than paces, and is only half as much work. Several cautions should be kept in mind when making a stride scale. First, the length of the stride should be carefully computed. If a stride scale is to be used in the construction of a sketch where most of the distances are to be paced over uneven ground, the measurement of a stride should be based upon observations made over terrain of the same type.

One method is to measure accurately with a steel tape the distance to be paced. It should not be too short a length; about a quarter or half-mile is recommended. An individual who desires to construct a stride scale, should stride the distance, counting the number of strides taken. Since the stride scale applies only to the person for whom it was constructed, that individual should stride the measured distance, being careful not to attempt to take steps that are longer or shorter than is normal for him. The practice of attempting to take a full yard pace is not sound since a person normally does not take such a long step. It is true that a 36-inch pace makes calculations easy, but after a person continues to walk for sometime he will tire and revert back to a normal pace. Again, it is well to pace the measured distance several times alternating the direction of such pacing. The average should be taken in the construction of the stride scale. The stride scale itself is constructed in a manner similar to that used in the construction of graphic scales as explained previously in this chapter. Knowing the measured length of the route strode, the length of a single stride can be obtained by dividing the measured length by the total number of strides. The only difference lies in that the graphic scale will read in strides rather than feet, yards, miles, etc. It can be made as long as the sketcher desires.

## HOW TO USE A COMPASS

In introduction, it is suggested that the reader acquaint himself with the nomenclature of the various parts of the compass before he proceeds further with this portion of the chapter. (Figure 47)

There are many types of compasses issued by the Corps of Engineers to ordnance troops as aids in determining direction. Included in this list are the simple watch compass, the lensatic, the prismatic, the wrist, and their liquid-filled versions if any exist. Each has certain characteristics peculiar to its own type. Since most ordnance units are issued a few of the lensatic type and since most compasses are used in a somewhat similar manner, the lensatic is the only one that will be discussed here. Reference to the appropriate field manual will give further information on the other types.

When you first open a lensatic compass be careful that you do not spring the case when you lift the cover. Lift the cover to a vertical position as shown in figure 48. Raise the lens bracket noticing that as you do the compass dial is permitted to float freely on its pivot. Immediately it will oscillate back and forth until the north arrow points toward the magnetic north pole. Be sure to hold the compass level else the compass dial will not float freely and may point to some other direction rather than magnetic north. Look at the compass dial. It is graduated in mils and in degrees, the outer scale being graduated in mils. There are 6,400 mils in a complete circle. Near the north arrow the figure 64 appears, the two zeros being omitted from each of the figures labeled on this scale. The closest graduation

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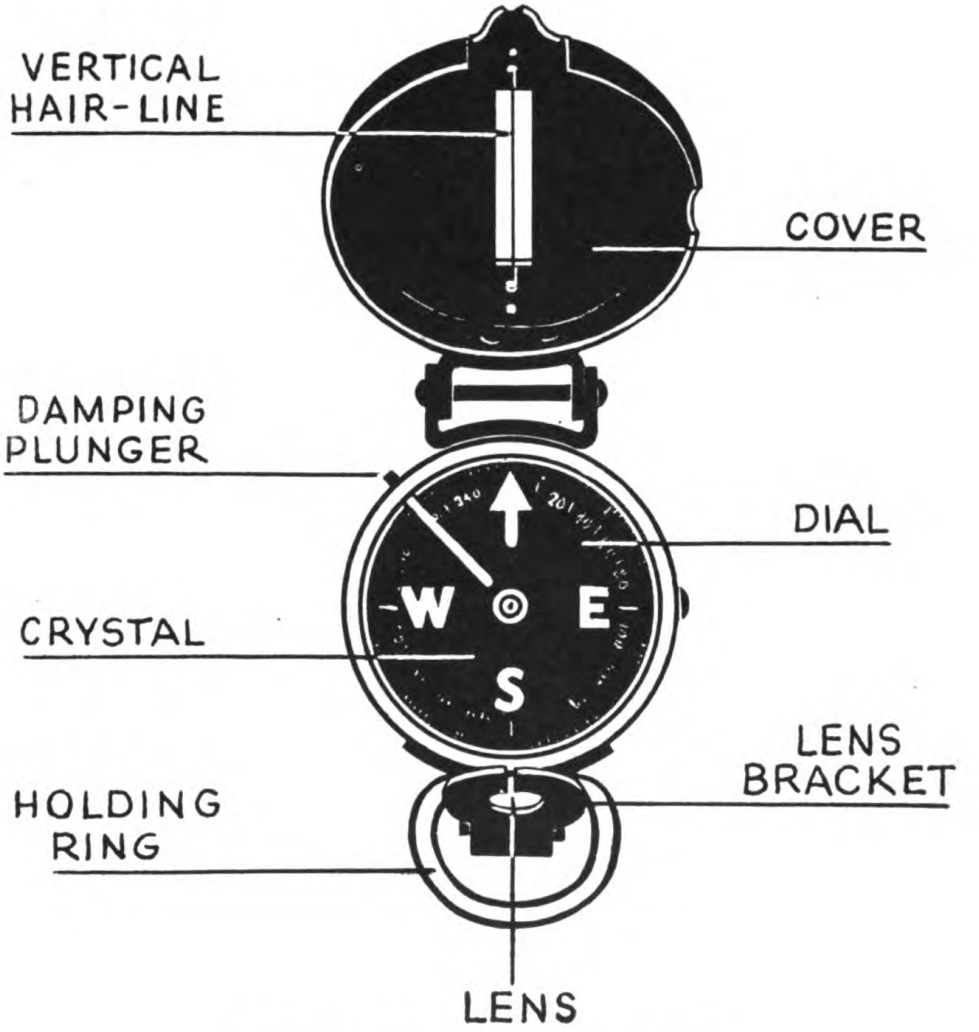



**Figure 47. Parts of the Compass—Lensatic.**

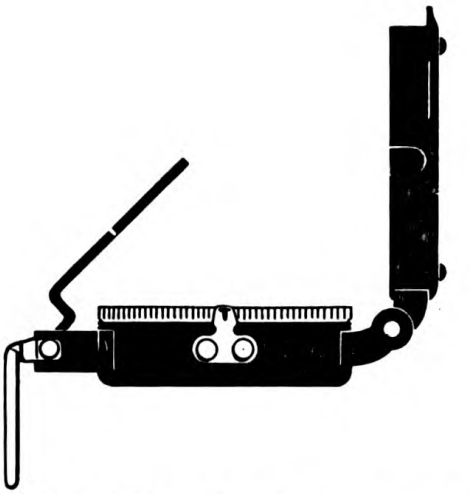


**Figure 48. Side View Lensatic Compass, Open.**

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is 20 mils. The inner scale is graduated in degrees, the smallest graduation being 5°. To use this compass take a position somewhat similar to that illustrated in figure 49. Loop the thumb of either hand through the holding ring permitting the compass to lie on the back of the closed fist. With the other hand grasp the compass case in such a manner that either the thumb or forefinger rests on the damping plunger which is used to stop the oscillations of the compass dial. Press the elbows firmly against the body and bring the compass up close to the eye so that the hand grasping the compass by the holding ring is held firmly against the cheek. Let us assume that you wish to read the azimuth (magnetic) of a line extending from



**Figure 49. Using the Compass.**

your position to a tree several hundred yards from you. Sight through the slot above the lens in the lens bracket, lining up the vertical hair-line in the compass cover so that it is centered in this slot. Turn the body until the hair-line falls directly over the center-line of the tree. You now have your line of sight extending through the compass from you to the tree. Hold this position carefully with the compass level until the oscillations of the dial subside. You may have to aid the damping by means of the damping plunger. Read the value of the azimuth angle opposite the index mark just inside the case next to the hinge. If you read it on the outer scale the azimuth will be in mils, if on the inner scale it will be in degrees. Perhaps it will be necessary for you to change the position of the lens bracket in order to see both through the slot above the lens and at the same time view the scale on the compass dial through the lens. This lens is used only to aid in reading the scales by magnifying the figures.

Procedure is reversed when you wish to start out at an azimuth which has been determined beforehand. Hold the compass in the manner previously described and let the dial come to rest. If, say, you wish to head out at a magnetic azimuth of 119°, turn your body until the 119° position on the compass dial is opposite the index mark inside the case. Now look through the slot in the lens bracket, and peering on past the vertical hairline in the cover, pick out some distant object in line with this hairline. This distant object could well be something such as a tree or a post. Check to make sure the compass dial reading is still 119°. Head off in the direction of the object selected, being careful to stay on the correct course.

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It may be necessary to check your azimuth several times. Use of magnetic back azimuth in sighting on your starting point is also helpful in keeping on your course.

**Night Use of the Compass.** Certain portions of the compass have been covered with luminous paint which will glow in the dark. On the lensatic compass these points are as follows: On the compass dial, the north arrow, and the south, east, and west direction letters; on the case, the index mark on the inside just below the hinge; on the glass crystal, a white line; on the inside of the cover, two small dots placed at either end of the vertical hairline.

Prior to going out at night, it is necessary to set the compass. This should be done in the day time or in the confines of a lightproofed tent. Assume that you wish to start out at a magnetic azimuth of 75° tonight under black-out conditions. Place the compass flat on the table, let the compass dial come to rest and turn the compass until the 75° mark lies opposite the index. Hold the compass carefully in this position, still leaving it flat on the table, and turn just the glass crystal by its brass mounting ring until the white mark on this crystal is directly above the north arrow on the compass dial. The compass is now set and it can be closed until you call upon it to give you your azimuth reading tonight. When night falls, take the compass from your pocket and open it wide. You can see only those portions listed previously which have been coated with luminous paint. Hold the compass level and let the dial come to rest. Rotate the entire compass until the luminous mark on the crystal is above the luminous north arrow on the dial. If you head in the direction of the two dots inside the cover, you will be proceeding at a magnetic azimuth of 75°.

The old axiom, "Practice makes perfect" applies one hundred fold to compass reading. Practice repeatedly the correcting of any tendency you may have to read a compass incorrectly. Learn to know the compass and to trust it. It may be the friend that you will have to call upon when all others fail.

## ORIENTATION

A map is considered oriented when lines on the map, such as roads, streams, etc., are parallel with the objects they represent on the ground. A reader of a map is said to be oriented when he knows his exact position on the map.

Much criticism of officers and enlisted men has been made by various higher commanders in recent campaigns for their failure to be able to read maps. Apparently most of them could do a satisfactory job of reading maps and aerial photographs in a class room, but when they had to do it on the ground, probably with a very poor, incomplete map, these men could not make the grade. The principle complaint was that they would get lost. Incidents have been cited where whole battalions failed to show up at the correct time at a designated line of departure just because the commanding officer was unable to use his map correctly in marching them up to their assembly position.

Orientation deals with aligning a map so that the directions are correct and with determining your position on that map. Methods for solving these problems will be discussed later. However, these procedures may often be obviated by a careful study of the terrain and intelligent use of the map.

When you start out from camp in the morning, check your position before you start and your destination on the map. If the country is familiar along your route, probably you can map your trip without giving much thought to it. However, if you are venturing into unfamiliar terrain, plan your movements. Plot out a course on your map. Start out on that course and check continuously while en route to make certain you are on it. The practice of noting cross roads and road junctions or bends in the road is excellent. Bridges, small streams, prominent hill-tops are also good. Do not expect the terrain to be accurately shown on your map. Perhaps that map was obtained from questionable sources. In addition it may be twenty years old. It may have to be used because none better happen to be available at the moment. If the terrain becomes unfamiliar and does not check the map, return to the last point where you were certain of your location and try again. Don't continue from a point where you know you are lost, you will only become more thoroughly confused.

The reader may say, "This is all well and good when operating in developed

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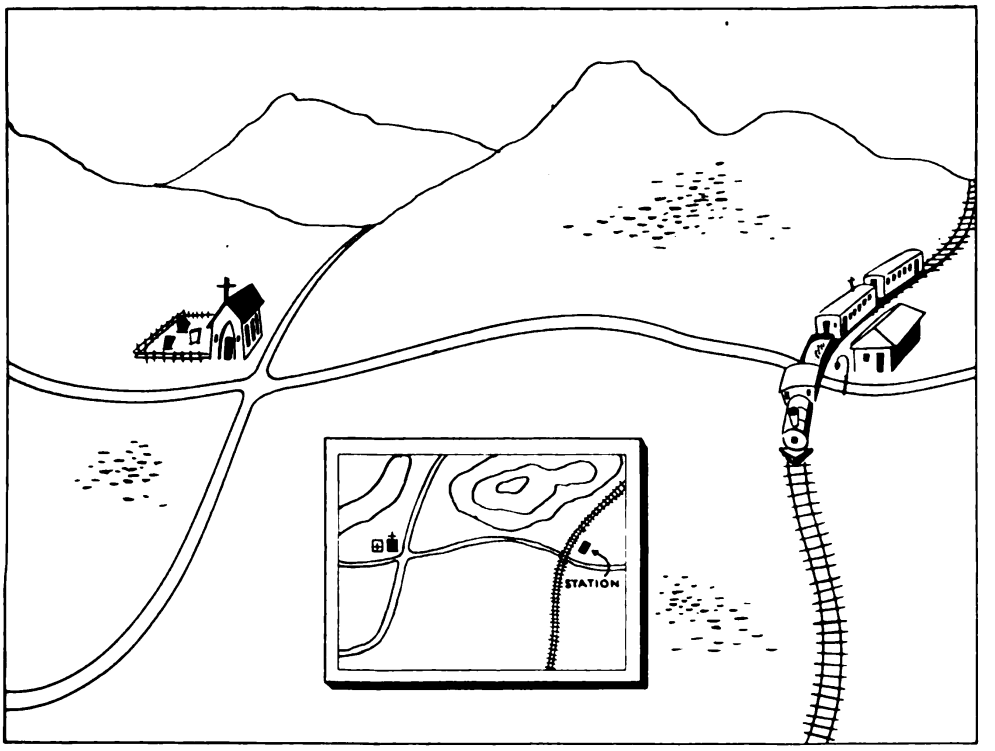



**Figure 50. Orienting a Map by Inspection.**

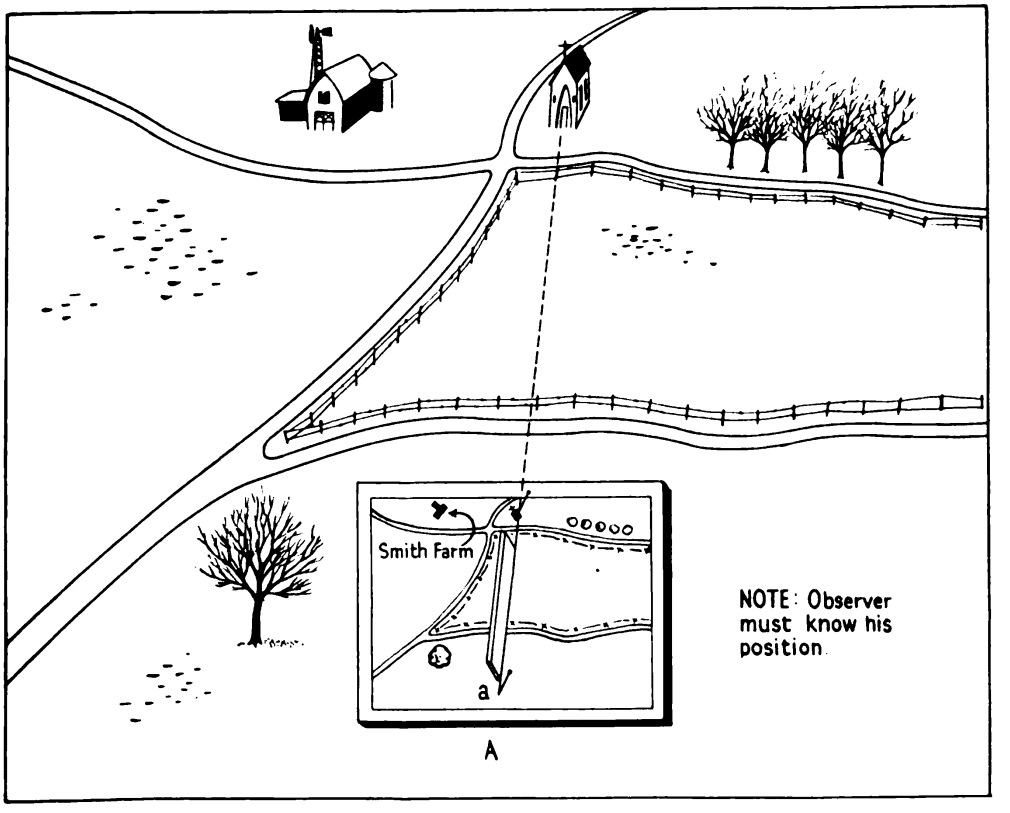



**Figure 51. Orientation by the "Distant Point."**

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country. How about fighting in the desert?" This problem is certainly much more difficult. If it seems likely that a unit is going to stay in one region long, certain landmarks should be noted and named. Their relationship (azimuths and distances) from other landmarks should be determined and published to all concerned. If no landmarks exist which can be catalogued, it is suggested that some be constructed. A pile of stones, a signpost, or something similar should be erected.

Plot your course on a map when venturing out into strange territory. Note distances by placing the speedometer readings between points directly on the map. This practice will enable you to retrace your route to a point of known location should you become lost.

**Orienting a Map.** *Inspection.* The simplest means for orienting a map is by 'inspection.' The symbols of objects shown on the map are aligned with the actual objects on the ground. This is illustrated in figure 50. It is one of the more commonly used methods, and although not extremely accurate, it is accurate enough for most map reading.

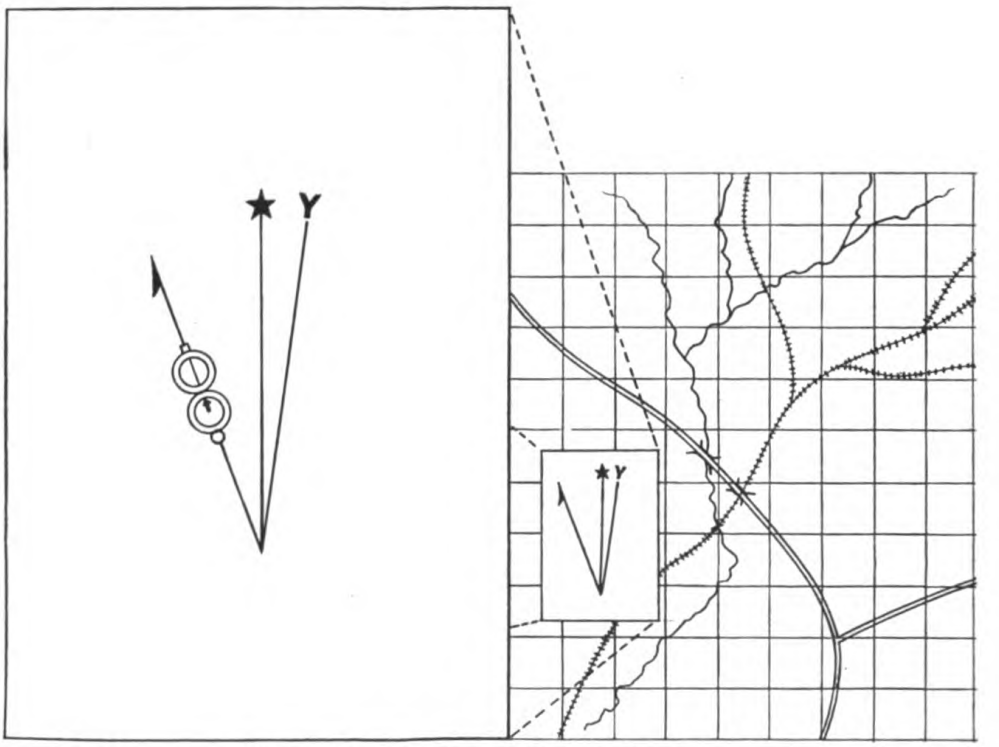


**Figure 52. Orienting a Map by Compass.**

*Distant Point Method.* The second means is a further development of inspection. It is termed the 'distant point' method, and requires that the map reader know his position on the map. In figure 51, the reader's position is shown by the small letter 'a'. Off in the distance can be seen the steeple of a church. The symbol for the church is shown on the map at 'b'. Common practice is to stick a pin into the observer's position on the map and another into the symbol for the church. Sight along these pins (a straight edge placed alongside the pins is a help in sighting) and turn the map until the line of sight across the pins coincides with the line of sight from the observer to the church. The map is now oriented by the 'distant point' method.

*Compass Method.* Another method for orienting a map is by use of the compass. The compass is placed on the magnetic north arrow on the map. The compass dial is permitted to come to rest. The map, with the compass held in the same relationship to it, is turned until the north arrow on the compass dial points the same direction as the north arrow on the map. The map is then oriented. Figure 52 illustrates this method.

**Orienting the Map Reader.** *Inspection.* The method which most map readers

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employ to determine their position on the map is inspection. The reader simply looks about him and sees where he is. Perhaps there is a hill on his right and off in the distance to his front is a church and a factory. He looks for these symbols on the map and estimates his position from each on the ground. Plotting this distance on the map, or sometimes simply estimating it, is enough to enable the reader to find his position on the map. It is well to have the map oriented before attempting to find your position. This could be done by means of the compass if one is available.

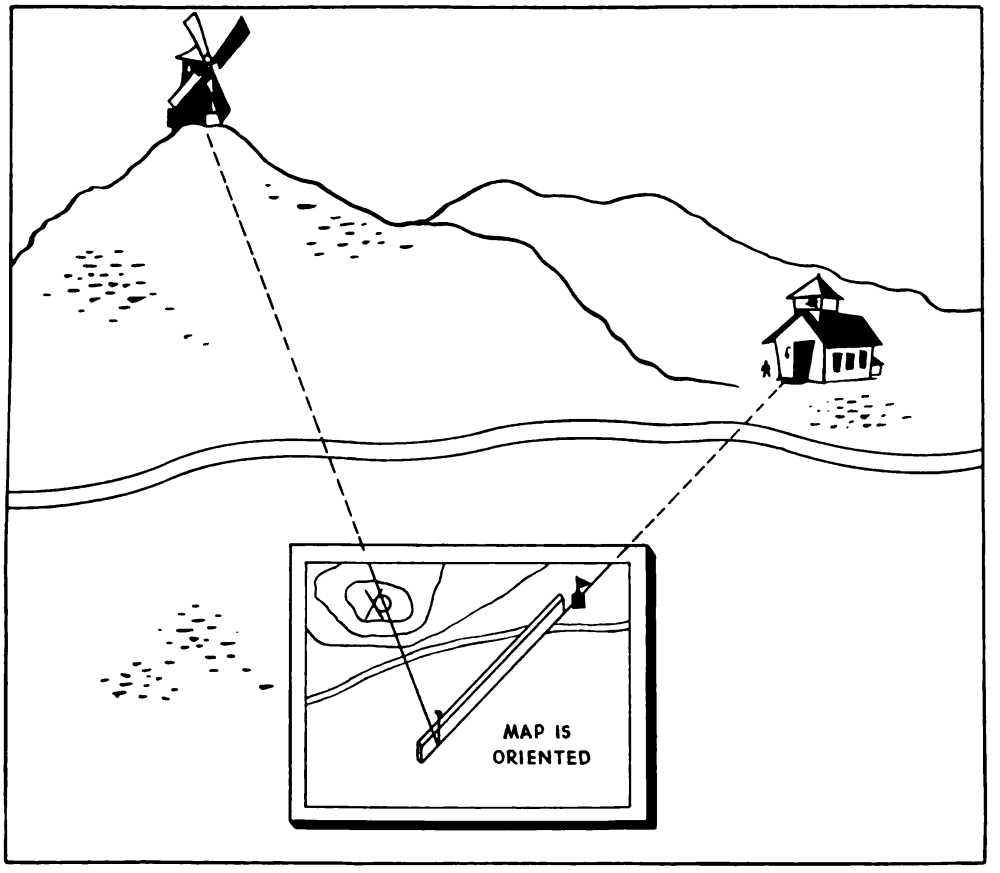
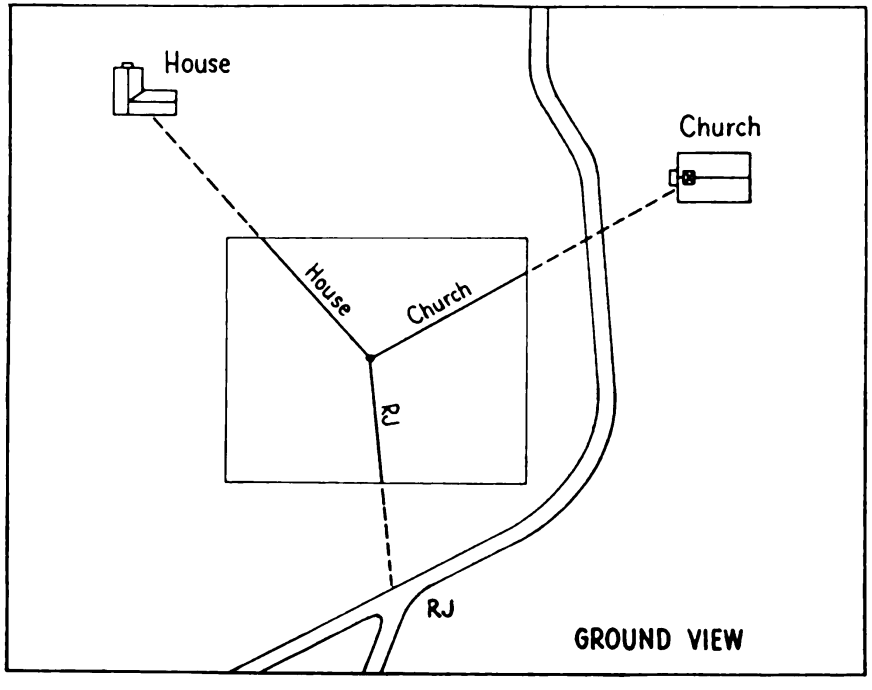



**Figure 53. Orientation by Resection.**

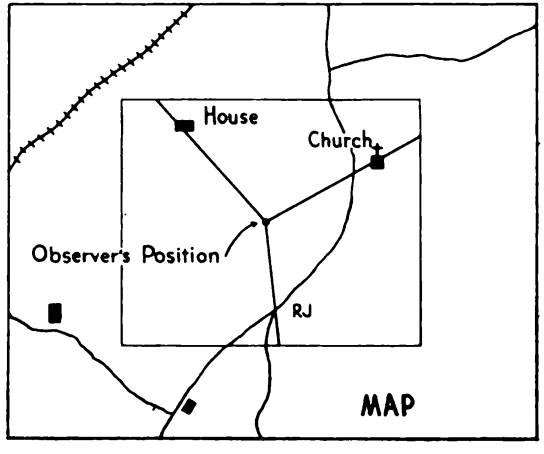
*Resection.* The second, slightly more complicated method of orienting the reader is termed 'resection.' Two prominent ground objects must be within view. They should be some distance from the observer and the lines of sight from the observer to each should be at about an angle of 90° to each other. It is also necessary that the symbols for these two objects appear on the map. The map must first be oriented to use this method. (Figure 53). A pin is stuck in each symbol on the map. A straight-edge is placed against the first pin. In the illustration this is stuck through the symbol for the windmill, and the observer sights over the straight-edge. He turns the straight-edge until the line of sight over it intersects the actual windmill in the distance. A line is now drawn on the map extending from the windmill symbol back toward the observer. The observer now knows he is somewhere on the map along that line, but thus far he does not know his exact position on the line. Now the straight-edge is placed next to the second pin stuck through the symbol for the schoolhouse. The process is repeated so that the line of sight along the straight-edge passes through the schoolhouse. A line again is drawn on the map alongside the straight-edge. The reader knows he is somewhere on this second line. The point where the second line intersects the first is the observer's position on the map.

*Three Point Resection.* It is possible accurately to orient a map reader and a map by a graphic method when only the reader's approximate position is known. This is by three point resection.

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FIRST STEP - Make overlay




SECOND STEP - Place overlay on map - determine observer's position.

**Figure 54. Orientation by Three Point Resection.**



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In figure 54 the method is illustrated. Three prominent points must be visible in the distance. Symbols for each must appear on the map or sketch. A piece of paper (preferably tracing paper) is needed. In the center of this paper put a dot. Holding the paper in a set horizontal position, sight from this dot towards each of the three objects in turn, and draw a line beside the straight-edge from the dot on the paper towards each of the objects. Again a pin would be helpful as an aid in placing the straight-edge. It is well to label the three lines immediately after they are drawn on the overlay. Placing this overlay over the map it will be found that it can be placed at only one position so that the three lines pass over the corresponding symbols on the map. If you place a dot on the map beneath the dot on the overlay you will be showing your present position on the map. You, as the reader, are oriented. The map can next be oriented by the 'distant point' method, previously explained.

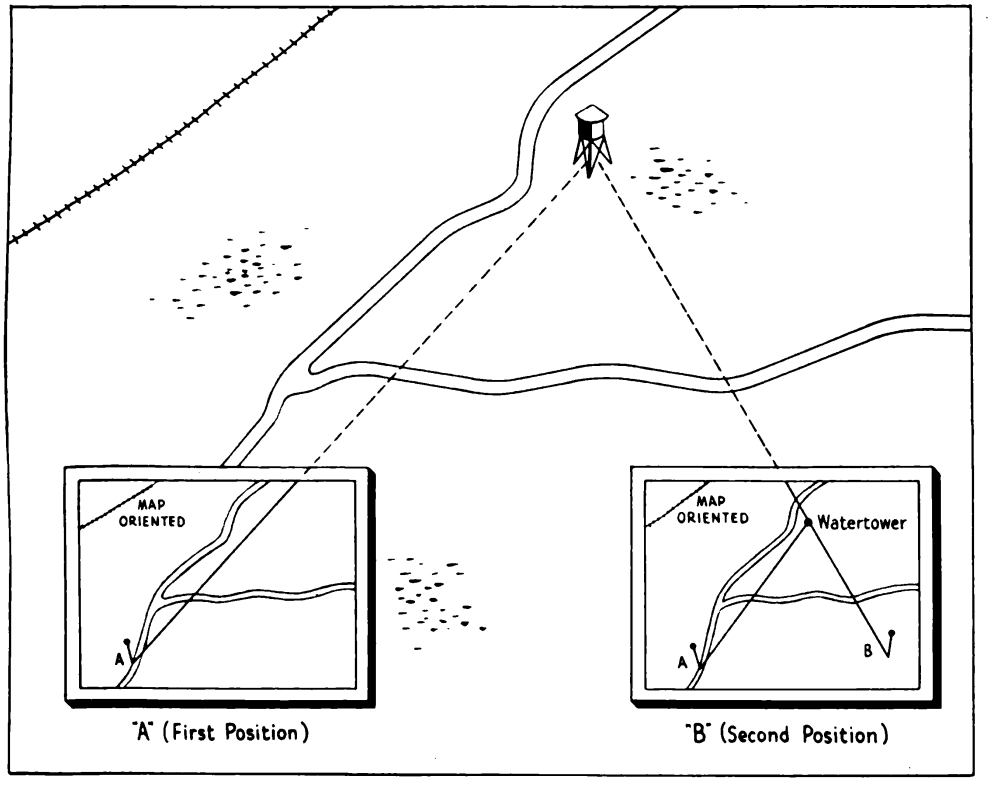



**Figure 55. Intersection.**

*Intersection.* The map reader may wish to add some points to a map or sketch which were not originally shown. This can be done by a process known as 'intersection,' or 'orienting a point.' The process requires that the map be oriented and the observer's position known. Assume that you are at point A on the ground (figure 55). The map is oriented. You desire to show a water tower which appears on the distant horizon. It is quite a distance over to the water tower so you do not wish to pace the distance and lay it off on your map. You place a pin in point 'A' on the map which represents your present position. Placing a straight-edge next to the pin you turn it until the line of sight across its top coincides with the line of sight to the water tower. Draw a line next to the straight-edge from point 'A' toward the water tower. Move to another position some distance from point 'A' on the ground. Let this position be 'B.' Repeat the process you went through at point 'A.' The water tower lies on each of the two construction lines, hence it lies at their intersection. The symbol for a water tower can now be placed on your map. This process is employed by persons making a field sketch of an area. Several lines of sight to a number of objects can be made from a point. When the sketcher moves to a second point he can draw in the second set of radial lines necessary to locate each of the

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additional points. It is a rapid, simple means and eliminates much pacing of distances.

## MAP STUDY

Map Reference, FRANCE and BELGIUM, 1:50,000, MONTREUIL, Sheet No. 60.

**Distance.** Examination of this map sheet shows that in the center of the bottom margin the scale is labeled "Scale 1:50,000 or 1 Inch to 0.79 Miles." In other words, 1 inch on the map represents approximately eight-tenths of a mile on the ground. In the upper left-hand corner, the scale is again stated as being, "France and Belgium, 1:50,000." This is a rather large scale map, the type which would normally be used by tactical unit commanders in planning actual operations in the field. As a further aid in the measurement of distance on this map sheet there are several graphic scales placed beneath the RF notation in the center of the bottom margin. The first of these scales is labeled in kilometers, the second in yards, and the last in miles. Depending on the units in which the map reader desires the answer, the appropriate graphic scale is selected.

**Direction.** Normally the direction of lines on this map would be measured on the face of the map by reference to grid north. In other words, grid azimuth or grid back azimuth would be used. In order to determine what the grid declination is on this sheet, notice the small box which has been placed to the right of the graphic scales in the lower margin. Within that box there is a title "Convergence is given for centres of West and East sheet lines." Notice that there are two two-prong diagrams in the box, the one at the left showing true north and grid north with the grid declination between the two being 4° 43′ west. The title at the top of the box explains that this left diagram applies at the center of the west sheet line; in other words, the point where the 60 vertical grid line intersects the 30 horizontal grid line. The right two-prong diagram within the small box shows that the grid declination for the center of the east sheet line is 4° 24′ west declination. This applies at the intersection of the 90 vertical grid line and the 30 horizontal grid line. The grid declination values shown on the map are constant since they do not change with time. In order to determine grid declination for any other point on the map sheet, other than at the two points for which it is given, it will be necessary to interpolate between the two values, 4° 43′ west and 4° 24′ west. For instance, if you wish to determine the grid declination for the crossroads at Longvillers, which is located in grid square (7433), you would note that Longvillers lies in the approximate center of the map. The difference of grid declination between the two edges of the map is 19 minutes, obtained by subtracting 4° 24′ from 4° 43′. Assuming that grid declination varies consistantly if one should proceed from one side of the map to the other, the value at the center of the map would be one-half of 19 minutes or approximately 9 minutes less than the value at the left edge of the sheet. In other words, the grid declination for Longvillers could be obtained by subtracting 9 minutes from 4° 43′, thus obtaining 4° 34′ west. This means simply that grid north lies 4° 34′ west of true north.

Within this same small square there is also a notation relating to magnetic declination. This notation is as follows: "Magnetic declination from True North for centre of sheet is 8° 55′ West January 1944. Annual change about 11 minutes East." Since the land area covered by this map is relatively small, the map being to a large scale, it is not necessary to have magnetic declination values shown for more than one point. It is sufficiently accurate for the map reader to assume that the value of 8° 55′ west applies at all points throughout the map sheet. Since the magnetic influence which attracts the north-seeking end of the compass needle changes with time, it may be necessary for the map reader to correct the value of 8° 55′ west to bring it up to the value at the present time. The value of 8° 55′ west applies as of January 1944. In January 1945 this value will have decreased by 11 minutes. In other words, the magnetic declination would then be 8° 44′ west. To determine the magnetic declination for any other time it will be necessary to use the same correction, applying it for whatever period is desired.

**Elevation.** Elevation is shown on this map by two means. The first is spot heights. Below the graphic scale, in the lower margin, are notations indicating that heights are given in meters. Looking in grid square (8525), you will notice a small figure 125. This indicates that the trig point located in the windmill has

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an elevation of 125 meters above mean sea level. Converting meters to feet by multiplying 125 by 3.281 you find that the elevation at the trig point, which actually is situated on a ridge, is 410.125 feet. The other means used for showing elevation on the MONTREUIL sheet is by means of contours. Immediately below the graphic scale there is a statement "Contour interval 10 metres." This means that the vertical interval between adjacent contours is 10 meters or approximately 32.8 feet. Taking the trig point in grid square (8525), you can see that it lies above the 120 contour line, hence it does check the value of 125 meters at the windmill.

**General.** It is good practice, when the reader first examines a map which is new to him, to check the source of that map. Looking at the lower left-hand margin of this map sheet, you will notice a number "G.S.,G.S. No. 4040. W.O. 1938, Fourth Edition, 1943." This indicates that this is a British map. The copy that you have has been reproduced by Army Map Service, the source of the information for compiling this map was the Geographical Section, General Staff, and they have given it the number, "4040". The Geographical Section, General Staff, is part of the British War Office. Examine the details shown on the map. Notice that the draftsmanship is quite accurate, and considerable care must have been taken to obtain the various contour elevations and the details of towns and cities. Of course, the country has undoubtedly changed with time; consequently, the information shown on the map cannot always be assumed to be accurate, even though it was shown correctly when the map was compiled.

Let us examine the information which is shown in the lower margin. First of all, in the lower left-hand margin you will notice columns which are part of the legend. They relate principally to roads, railroads, and boundaries, giving the width of the roads and the surface. To the right of this legend there is a small box labeled "Incidence of Grid Letters and Index to Adjoining Sheets." MONTREUIL Sheet, No. 60, is shown cross-hatched in the center of this box. You will notice that Sheet No. 49, the BOULOGNE sheet, lies directly north or above the MONTREUIL sheet, and Sheet 71, the RUE sheet, lies directly south or below it. In other words, if you wanted complete coverage of this portion of the coast of FRANCE, you could obtain Sheets 49 and 71, and by pasting them to Sheet No. 60, the one you now have, you could have a complete strip map of this region. To the right of this little box there is another one, labeled "Reliability Diagram". Within this box is represented the area which is shown on the entire map. Notice that the coast line and its outline is indicated. What is the meaning of the diagram? Simply this. That portion of the diagram which shown cross-hatched has been checked by air photographs. In other words, all the land area of the MONTREUIL sheet has been revised from air photographs. In the center of the lower margin, beneath the graphic scale, there is printed a notation as follows, "The Grid on this map is Nord de Guerre Zone." The grid system placed on this map is part of the British grid. The entire map lying within the 'G' grid square, as indicated in the little box to the left of the graphic scale "Incidence of Grid Letters and Index to Adjoining Sheets." At the far-right portion of the bottom margin, there is another portion of the legend, two columns of it, which explains some of the symbols which are used on the face of the map. It is recommended that the map reader study this legend in some detail, so that he can immediately recognize various signs on the map without having to check repeatedly what they mean by referring to the legend.

This map could not be called either a French map or a British map, although the British are responsible for putting it out. It actually is a hybrid, being a mixture of both. It is based originally on a French map which has been modified in accordance with certain standard British practices. Place names used on the map often give a key to what actually is meant by the name. Notice in grid square (7422), there is a city called CAMPIGNEULLES LES PETITES. CAMPIGNEULLES LES PETITES has a small figure 0.1 below it. Reference to the legend indicates that 0.1 refers to population. Since the unit used is 1000, the population of the small town is 100 people. Looking in grid square (7221), you seen another village with a similar name, CAMPIGNEULES LES GRANDES. Notice that the figure for the population here is 0.2, indicating it to have 200 people. The names of the towns themselves reveal that CAMPIGNEULES LES GRANDES or CAMPIGNEULES THE GREAT should be larger than CAMPIGNEULLES LES PETITES,


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or CAMPIGNEULLES THE SMALLER. Now focus your attention on some of the cities which are shown along the left edge of the map near the shore of the English Channel. Examination will reveal that the ending PLAGE is placed on the end of some of the city names, for example; LE TOUQUET PARIS-PLAGE is one, MERLIMONT-PLAGE is another, and down towards the bottom of the sheet, BERCK PLAGE. The five-letter ending "PLAGE" means 'on the beach,' indicating that these towns actually are located on the beach, which can be checked very readily by examination of the map. The town for which the map was named, MONTREUIL, actually appears in grid square (7624) and is labeled there as MONTREUIL SUR MER, meaning "MONTREUIL on the sea". Looking at the right-hand edge of the sheet you will see a town labeled MANINGHEM-AU-MONT, grid square (8932). To the left of it a short distance, in grid square (8831), there is a town of MANINGHEM-AU-VAL, indicating that the first town, MANINGHEM-AU-MONT, is on the mountain, and MANINGHEM-AU-VAL, is located in the valley. Checking of the contours will indicate this to be true.

How many railroads are shown on the map? A careless map reader, looking at the map for the first time, would probably remark, "Quite a few". Actually there are not so very many. The symbol for railroads is a solid black line when it is a double track railroad as shown in grid square (6820), and the alternately black-and-white line, grid square (7327), for a single track railroad. Persons are prone to think that the roads, such as the one running directly north out of MONTREUIL-SUR-MER, are railroads, because they happen to show along their sides little tick marks, which actually represent trees rather than ties in a railroad track. In grid square (8123), there is the small town or city, MARLES-SUR-CANCHE, meaning the town of "MARLES on the CANCHE RIVER, the CANCHE RIVER being the main river which runs from the lower right-hand corner of the map into the English Channel, near the upper left-hand corner.

## AERIAL PHOTOGRAPH INTERPRETATION

Increasing use has been made in recent campaigns of photographs of the terrain taken from the vantage point of an airplane. These photographs are not to be regarded as map substitutes but as map supplements. In some instances, however, when no maps are existing because none have been made of that particular region, aerial photographs are the only means available by which a soldier can make a reconnaissance of an area without actually performing it on the ground.

The brief discussion of aerial photographs and their interpretation included in

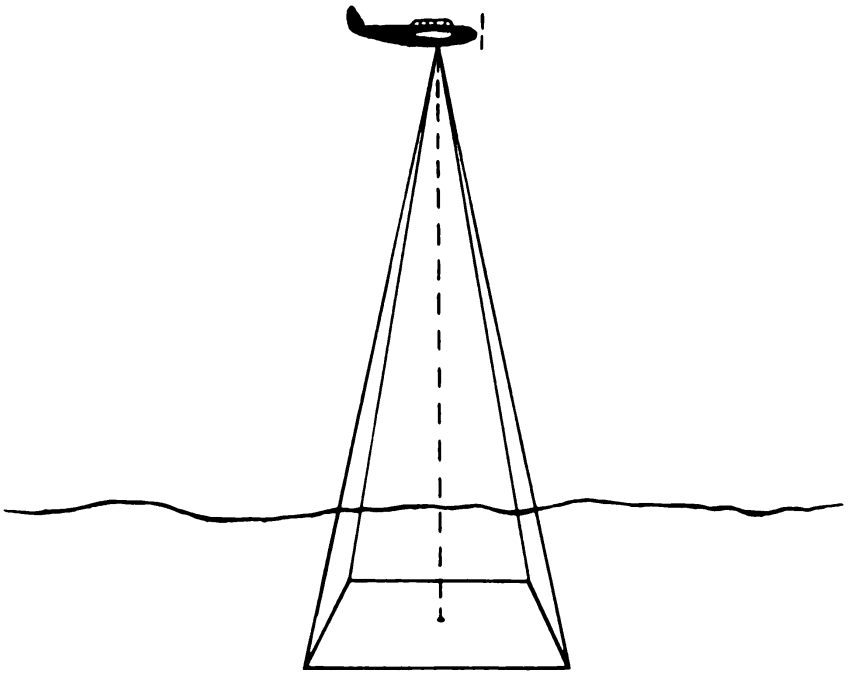


**Figure 56. Taking a Vertical Photograph.**

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this book is for the purpose of acquainting the reader with the various types of aerial photographs, their capabilities, advantages and limitations and, finally, a short treatment on how to read several photographs.

The coverage given aerial photographs in this article can be regarded as only a brief orientation. The student will not be an expert after he has digested the information included in the rest of this chapter. Expert photograph interpretators are highly skilled individuals whose ability has been developed by months of practice and work. You probably cannot afford to spend the time necessary to become an expert. There is nothing to stop you, on the other hand, from learning the fundamentals of photograph interpretation, which once mastered, would help you in continuing the study on your own. Such application, in time, should make you quite adept in determining the details of terrain as pictured on an aerial photograph.

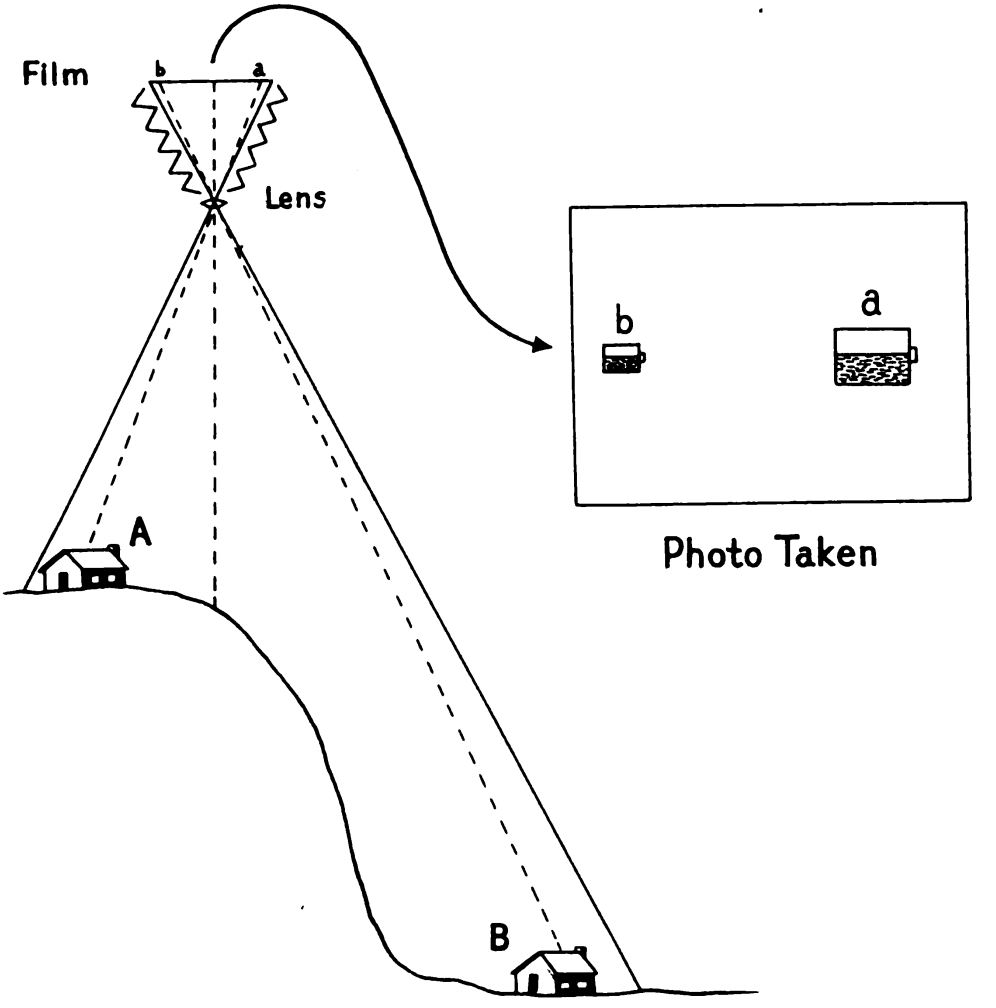



**Figure 57.**

**Types of Aerial Photographs.** The kinds or types of photographs employed by the various arms and services are a result of the use to be made of each. It is possible to classify photograph types as follows:

I. VERTICAL
   A. Strip
   B. Mosaic
   C. Pin Point
II. OBLIQUE
III. COMPOSITE
IV. STEREOSCOPIC

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**Vertical.** This is the most common type of aerial photograph in use. An examination of the diagramatic sketch in figure 56 shows that in this type the axis of the camera is held vertical to the surface of the ground when the camera shutter is tripped. The resultant photograph is one which most closely resembles a map as it shows the objects on the ground's surface in more or less the correct horizontal relationship one to another. Some error is introduced which makes the scale not exactly uniform. This can be caused by several factors. For instance, if the camera happens to be tilted even slightly when the shutter is tripped, the scale of the photograph will vary on the two opposite edges. Another cause for distortion is due to the earth's surface itself being at different distances from the camera due to its varying elevations, thereby causing an object, such as the house at 'A' in figure 57, to appear the size of 'a' on the photograph, while another house, 'B', identical in size with 'A', but sitting in the bottom of a valley, appears much smaller ('b' on the photograph). This occurs because 'B' is farther from the camera lens than the house 'A'. In spite of this distortion, vertical photographs are a great aid since, once the representative fraction of the photograph has been determined, distances can be scaled directly from the photograph. Identifying objects on the photograph may be difficult to the uninitiated student. This is due principally to the point of view. When a person looks at a house, the normal position is such that the observer is at about the same elevation as the house itself and gets a view only of one or two of its sides. Trees, barns, fences, etc., are viewed from the side and one becomes accustomed to a world made up principally of side views. The vertical photograph, on the other hand, does not show any side views of objects. Instead, everything is viewed from the top. It is necessary to become accustomed to recognizing the various forms and shapes of objects on the earth when viewing them from above, or in other words, learning the top appearance of all terrain objects. This requires practice and study with a liberal use of imagination on the part of the interpreter. Figure 58 (in the envelope) is a typical vertical photograph.

**Strip Photographs.** Photographic reconnaissance planes are equipped with cameras which are capable of taking vertical photographs one after another in such a manner that each successive photograph overlaps the previous photograph by a set amount. A ground area of which strip photographs are to be taken is divided into a series of parallel strips. The plane's course over this area is plotted in such a manner that complete coverage of the area is obtained with each strip overlapping the other to a predetermined amount. The plane flies at a constant elevation in order that the resulting photos will all be of the same scale. It is important that the pilot keep his ship on an even keel at the prescribed elevation and on the correct course.

It is customary for one photo of a strip to overlap the adjacent by 60 per cent. Some standard sizes for the finished prints are 6 x 6 inches or 9 x 9 inches. For mapping purposes, photographs may be taken with the plane flying as low as 5,000 feet, while, for photograph reconnaissance purposes over enemy held territory, the pilot may keep his ship up around 20,000 feet to avoid anti-aircraft fire.

**Mosaic.** Most everyone has had the opportunity to see a decorative mosaic floor, probably in some large state building. This mosaic floor would have been made up of many small pieces assembled together to make the final design. In a like manner, vertical aerial photographs are assembled together to make one large picture. This can be done by taking a series of strip photographs and assembling them by matching the information in the adjacent edges (Figure 59 in envelope). The result is called a strip mosaic. When the mosaic is formed by simply matching the adjacent photographs by eye, in other words lining up roads with roads, and fields with fields, the assembled photograph is called an uncontrolled mosaic. However, when the exact relationship with ground objects is accurately measured and these ground relationships are plotted on a transparent overlay, the various separate photos may be placed underneath the overlay so that those points for which control has been established are under the correct points on the overlay. This system of aligning or assembling the separate photographs produces a controlled mosaic. The amount of time necessary to produce this type of mosaic depends upon the size of the area included and the number of control points used in establishing the control. This method is employed in the manufacture of maps based on information obtained from aerial photographs.

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Mosaics are often constructed to show a large area which has not been mapped; in fact, a mosaic can be used as a map substitute. Since a camera is limited in the maximum size of the picture which it can take, the physical assembly of various prints, after each has been processed, into one large photograph is often necessary.

**Pin Point.** The pin point photograph is a vertical photograph taken at a low altitude and includes a very small area of ground. Considerable detail can be studied on this type of photograph since objects are shown to a relatively large scale. An example of a tactical need for a pin point photograph might occur when examination of a strip photograph revealed a change of terrain at a particular road intersection behind enemy lines. G-2, noticing this change in the terrain's appearance, becomes interested and desires to find out the cause for it. He requests a photographic mission for the purpose of taking a couple of pin point photographs of the road intersection. The photographs are taken and their large scale enables G-2 to discover that the enemy has located a new ammunition supply installation at the road intersection in question.

**Oblique.** An oblique photograph is taken with the axis of the camera tilted away from the vertical. In fact, the more common angles at which oblique photographs are taken are at 30° to the horizontal (Figure 60) and at 45° to the horizontal.

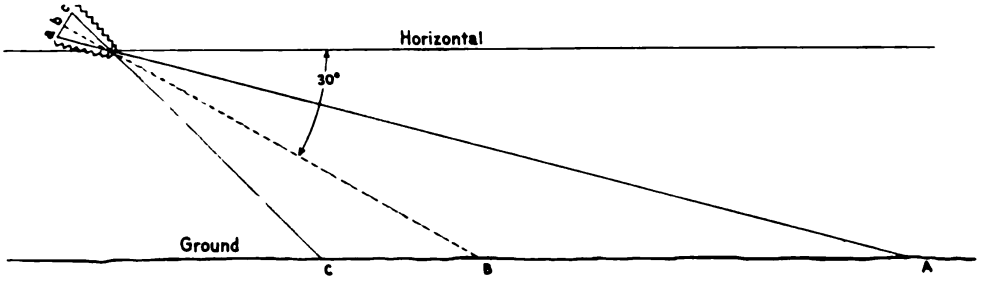



**Figure 60. Taking an Oblique Photo.**

Oblique photographs again fulfill a need. It was stated in the discussion of vertical photographs that viewing objects from above was not the normal manner in which a person sees these objects. That was one of the disadvantages of verticals. The oblique photograph is made so that the finished picture is similar to what a person might see if he were on a high mountain looking down into a valley. It has the advantage of showing objects much in their true shape. The reader sees both a portion of the top of an object and also a part of at least one side. The true form of the object is apparent. One of the disadvantages of oblique photographs is that the scale varies and distance cannot be measured graphically on the print. Quite often oblique photographs are used in conjunction with verticals to study thoroughly a particular area.

Oblique photographs may be grouped into two general classes. The first is high oblique. In the high oblique the camera axis is tilted so near the horizontal that the horizon is included in the photograph (Figure 61 in envelope). The other class is termed low oblique and are taken with the axis inclined to the vertical but not showing the horizon.

To illustrate an oblique's variation in scale, note that the ground length A-B appears as the length a-b on the photograph (Figure 60). The ground length B-C appears as length b-c on the photograph. The photograph shows these distances to be the same while the actual ground distance A-B is much greater than the ground distance B-C. This should readily illustrate the variation in scale on an oblique photograph, and this variation is one of its shortcomings.

**Composite.** To make a composite photograph, more than one picture must be taken at a time. One type camera takes a vertical and four obliques with five shutters clicking simultaneously. When the five films are developed, the prints are assembled somewhat like the diagram in figure 62. The scale is not accurate on a composite photograph, but this type camera permits a photo reconnaissance plane to get in over an area which is to be photographed, snap its picture, and get out rapidly. There is no need for it to fly a straight course to get a number

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of pictures as is the case in strip photographs. The advantage of this type of picture, in addition to the one just mentioned, is that a large area can be shown on a relatively small print. A disadvantage is the loss of detail and the fact that the scale is distorted. Cameras are in use which will take nine pictures at one time, one vertical and eight obliques.

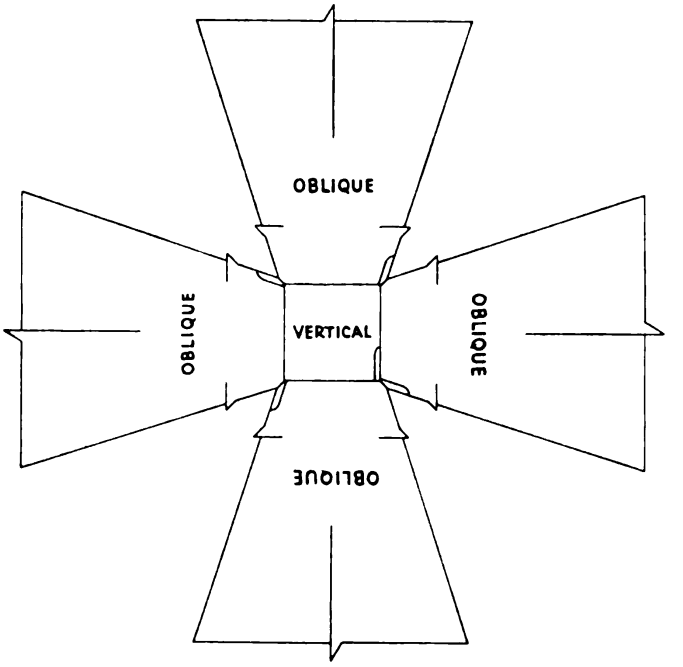



**Figure 62. A Composite Photo.**

**Stereoscopic.** Vertical photographs are the ones most often viewed stereoscopically. Stereoscopic photographs make use of stereovision or the seeing of an object in three dimensions. It is common knowledgs that when a person looks at some

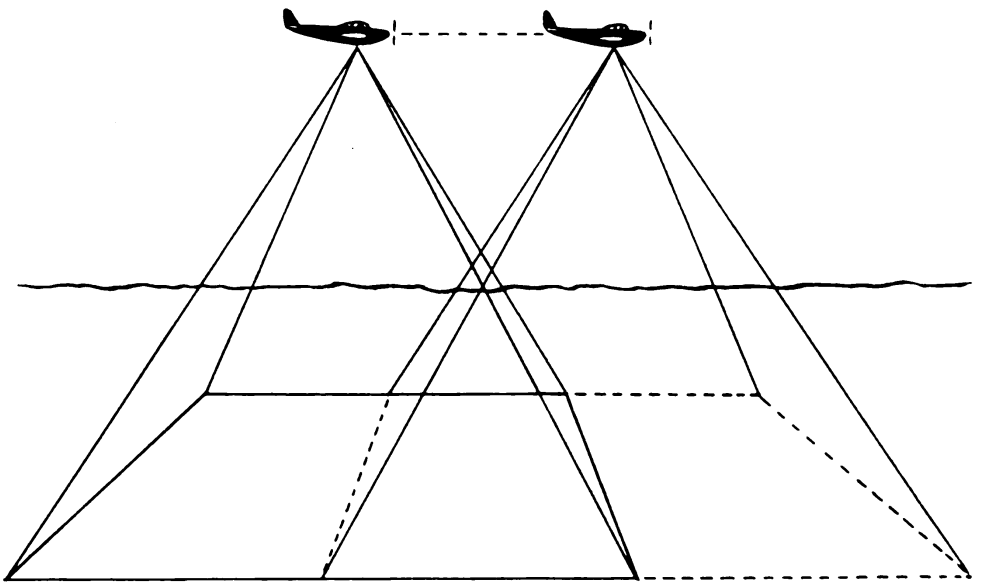


**Figure 63. Taking Stereo Pairs.**

object across the room from him with the naked eye, he is actually taking two pictures of it, one with the left eye and the other with the right. These two images are assembled in the brain and, since the two images are taken from slightly different positions, the third dimension or depth is apparent. Stereoscopic photographs are viewed in a similar manner. Two photographs of the same object

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to the same scale are taken from different camera positions. These photographs are normally called stereopairs. One of the photographs is viewed with the left eye and the other with the right. It requires some training to control one's eyes so that the left will look at one picture while the right looks at another. To aid the photograph interpreter, stereoscopes are used. One type of stereoscope consists of magnifying spectacles which, in addition to magnifying the object shown on the photograph, also tend to aid each eye focus on the correct photograph.

Stereo-pairs are taken with the airplane flying at the same elevation in order for the scale to be identical. The plane snaps a picture at one position (Figure 63) and then flys on and snaps another picture from a second position. These two pictures are laid out on the table similarly to figure 64 and a stereoscope set over them. The reader orients or fuses the two images and immediately the third dimensional effect should be present. This is done by moving either of the two prints. The fact that the plane traveled quite a distance between the point where the first picture was taken, and the place where the second was snapped, tends to make the height of the ground objects appear much greater than their true height.

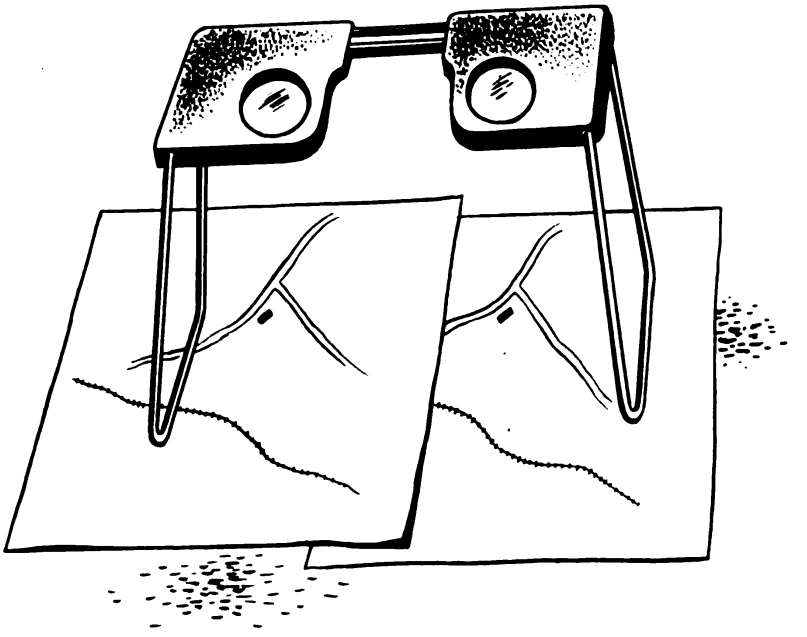


**Figure 64. Using a Stereoscope.**

Strip photographs, due to the fact that they overlap 60 per cent, may be viewed stereoscopically. It may require some juggling in order to place the correct portion of each of the two prints under the stereoscope.

## INTERPRETING AERIAL PHOTOGRAPHS

**How to Place Photographs for Viewing.** In order that the relief be apparent, especially when looking at stereo-pairs, it is recommended that photographs be so placed that the shadows of objects appearing on the photographs fall toward the reader. The light source should be from the front.

**Patterns.** Nature does not arrange her world so that its objects are lined up along any set, evenly-spaced, pattern. Man *does* place things in rows, makes square or rectangular fields, and generally attempts to organize terrain objects. Consequently it is possible to spot man-made objects by their regular appearance, right-angled corners, and straight lines.

**Shape.** Natural things are generally not square or angular. Some objects, such as pine trees, do have very symmetrical characteristic shapes, however. It is well for the photograph reader to learn to recognize as many of these shapes as possible, especially as they appear from above. It requires gaining familiarity with a new world, which at first looks strange, but soon you will be able to amaze

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yourself with the ease with which you can identify ground objects by photograph examination.

**Shadows.** As previously mentioned, the vertical photograph is the one most suited for military purposes. It has the inherent disadvantage, however, of showing the tops of objects rather than their side views. Many times you will be unable to identify some particular item appearing on your photograph by looking only at its top. Shadows of the object, cast by the sun, may be the key to your problem. For instance, you may wish to determine the shape of a particular building. Examination of the photograph of the building reveals little, but scrutiny of the shadow it casts, reveals the spire of a church.

**Size.** On the photograph you are examining, it is well to locate objects, of which you know the dimensions. Such objects include vehicles, road widths, and section lines. This will give you a basis for comparison which will enable you to determine the approximate scale of the photograph and, what's more, the size of other objects of unknown dimensions.

If you are able to find out the height of some building which casts a prominent shadow on your photograph, you will be able to establish a relationship between vertical heights of objects and the shadows they cast. In this way it will be possible for you to calculate heights of bridges, depths of cuts, etc., simply by measuring the shadows they cast.

**Texture.** Since most present day aerial photographs are not in color, the various terrain features appear in varying shades of black, gray, or white. Color does not necessarily determine the shade of gray which is shown on the photograph. A black-top or asphalt road may look white on a photograph, because of its smooth surface which reflects a large amount of light into the camera's lens. Plowed fields also look almost white or a light shade of gray. Forests, on the other hand, look dark due to the fact that the many shadows cast by the small leaves and twigs absorb the light rather than reflect it. It is recommended that the student study textures of common objects so that he will be able to distinguish between the many shades of gray on the aerial photograph. Conifer trees, such as pines and cedars, have very fine needles and do not shed them in winter. They appear quite dark, almost black, on most photographs. Deciduous trees, on the other hand, which include elms, oaks, etc., do shed their leaves. These leaves are generally of larger size than the needles of conifers. They appear lighter in shade in summer, and during the winter when they are leafless, thir appearance is very light with a spider-web or fuzzy effect.

## AERIAL PHOTOGRAPH EXAMINATION

In the following study, the reader will make use of aerial photographs shown in the following illustrations: Figures 58, 59 and 61 (in envelope.) Sufficient points are labeled on each of the photographs to identify the areas and objects to which reference is made. In case you are unable to make out an object clearly on the vertical photograph, figure 58, turn to the oblique photograph (figure 61) to see if it will aid you in determining the ground appearance of the object. In some cases, the reader's attention will be specifically directed to a particular figure for the purpose of illustrating an important point.

In figure 59 the area shown on the photograph in figure 58 is outlined. Some of the points are also lettered and numbered on figure 59, a few being omitted to prevent the details from being hidden under a maze of references.

On the large scale vertical, figure 58, (RF approximately 1:9000), a division headquarters has been located in the farm house near 'A.' Imagine that you are leaving this headquarters and are planning to return to your ordnance company bivouac area via the following route: 'A, B, C, D, E, F, G, H, and J.' A description of your trip would go something like this:

Leaving division headquarters, which is situated in a farmyard surrounded by conifers and deciduous trees, you will turn onto a lane which is just wide enough for two cars to pass. Proceeding towards 'B,' there is an open field on your right and a road enters your route from the left. You continue on to 'C' and make a 45° turn to the right. On your right, at the corner, is a large conifer. You can readily see this on figure 61, both by examining the tree, and by looking at the shadow it casts. Also on your right is a white board fence. A telephone line

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runs along the right side of the road. Shadows cast by the poles are readily visible.

A few additional conifers are scattered along the left side of the road. At 'D' is shown a deciduous tree (one which sheds its leaves in winter). These photographs were taken late in December. Take particular notice of the evenly spaced trees lining the right side of the road at 'E.' Continuing, you come to a cross-roads at 'F.' You make a right turn at this point. To your left front as you make the turn, you will notice a wood. It is mostly second growth timber, indicated by the varying heights of the trees. No conifer trees are in this wood. At 'G' you pass through a small cut, and at 'H' cross a small stream. On your right at 'J' is a field which has been recently plowed, indicated by the furrowed markings with their characteristic contoured shapes.

How far will you have traveled in moving from point 'A' to point 'J.' Measuring the distance on figure 58 and using the representative fraction to give you the answer, you should arrive at a figure in the vicinity of 1.48 miles.

Examination of the numbered points gives the following information:

Point 1: A small draw draining some form of stubble field from which the crop has already been harvested.

Point 2: The draw at point 1 has now developed into a small stream which empties into a larger stream or creek at point 2. Sparse woods cover this area. Trees are of uneven height and are mostly deciduous.

Point 3: A small farm house, with two large trees beside it. The trees are apparent both on the oblique and the vertical views. Shadows visible on the vertical view show the outline of these trees.

Point 4. Crops which have been harvested and placed in shocks; probably small grain.

Point 5: A field from which crops have been harvested. The vertical photograph gives no indication that this field has a slight rise in the center, while examination of the oblique immediately makes this fact known.

Point 6: On the vertical, it is a little difficult to tell whether the blurry object is a tree or something else. The oblique gives the answer.

Point 7: The oblique must have been taken a few days before the vertical. Why? Some of the shocks of grain appearing on the oblique have been removed and do not appear on the vertical.

Point 8: Examination of the vertical indicates some form of fence line or weeds separating two fields. A small draw is indicated but there is no way of telling how deep it might be. Looking at the oblique shows the details of the fence and more information about the size and depth of the draw.

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## Appendix I

## CONVERSION FACTORS

*Note.* To convert units in Column 1 to units in Column 3, multiply Column 1 by the factor in Column 2.

| *Column 1* | *Column 2* | *Column 3* |
|---|---|---|
| *Length:* | | |
| Miles | 63,360.0 | Inches |
| Miles | 5,280.0 | Feet |
| Miles | 1.609 | Kilometers |
| *Knots (naut miles) | 1.1516 | Miles |
| Kilometers | 1,000.0 | Meters |
| Kilometers | 3,281.0 | Feet |
| Meters | 3.281 | Feet |
| Meters | 100.0 | Centimeters |
| Centimeters | 10.0 | Millimeters |
| Meters | 39.37 | Inches |
| Inches | 2.540 | Centimeters |
| Fathoms | 6.0 | Feet |

*A Knot is the rate of one nautical mile per hour. A nautical mile has a length of 6080.20 feet.

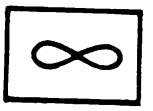
| | | |
|---|---|---|
| *Angular Measurement:* | | |
| Circle | 360.0 | Degrees |
| Circle | 6,400.0 | Mils |
| Degree | 60.0 | Minutes |
| Degree | 17.8 | Mils |
| Mil | 3.27 | Minutes |
| Minute | 60.0 | Seconds |



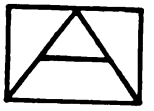
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## Appendix II MILITARY SYMBOLS

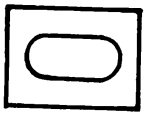
### Arms and Services



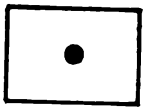
Air Force



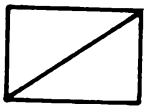
Antiaircraft Artillery



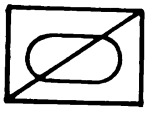
Armored Command



Artillery, except Antiaircraft Artillery



Cavalry, Horse



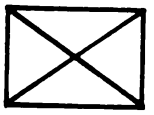
Cavalry, Mechanized



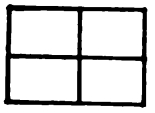

Chemical Warfare Service




Engineers



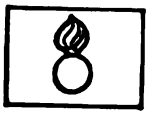
Infantry



Medical Corps




Military Police



Ordnance Department



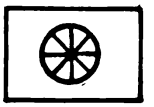

Quartermaster Corps

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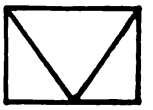
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Tank Destroyer



Transportation Corps



Veterinary Corps

**Units**

● Squad

●● Section

●●● Platoon

I Company, Troop, Btry or Flight

II Battalion or Squadron (Cav or AF)

III Regiment, Group or Combat Team

X Brigade, Armored Combat Command or Air Force Wing

XX Division or Air Force Command

XXX Corps or Air Force

XXXX Army

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 Section of Communications Zone

 Communications Zone



Theater Headquarters

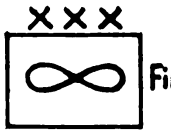
## Unit Designation

*Rules:*

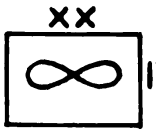
1. The basic symbol is placed in center.
2. The symbol for size of unit is placed above.
3. Army and air force are shown by number spelled out.
4. Corps and air force command are shown by Roman numerals.
5. When the symbol represents either an army or a corps in its entirety, the numeral designation is placed *inside* the box. When the symbol pertains to a unit within an army or corps, the army or corps numeral is placed on the right, outside the box.
6. Numbers designating battalions in a regiment are shown on the left, in Arabic numerals.
7. Numbers designating separate battalions are shown on the right, in Arabic numerals.
8. Numbers designating divisions, brigades, groups, regiments, separate companies, or similar separate units are placed on the right, in Arabic numerals.
9. Letters designating companies, troops, or batteries are in capitals and are shown on the left.
10. Companies, troops, batteries, or platoons (not separate), and other elements of a unit which are designated by name instead of by letter (for example "Antitank Company" or "Headquarters and Service Troop"), are designated by the use of the proper abbreviation on the left.
11. Abbreviations for explanatory purposes are shown on the right.
12. Abbreviations are used instead of symbols to show information that cannot be indicated by a single symbol.

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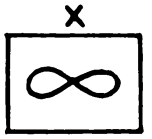
## Troop Unit Examples



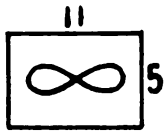

First Air Force



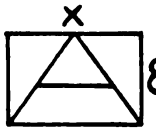

IV Fighter Command



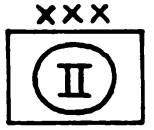

8th Fighter Wing



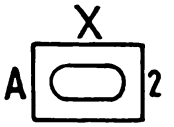

5th Bombardment Squadron (Heavy)



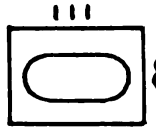

8th Antiaircraft Artillery Brigade



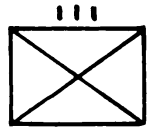

II Armored Corps



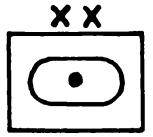

Combat Command A, 2d Armored Div



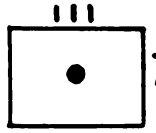

8th Tank Group



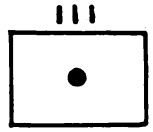

18th Infantry Regiment



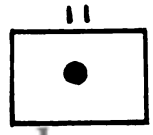

Division Arty, 2d Armored Div




7th Coast Artillery Regiment

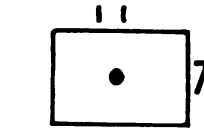



3rd Field Artillery Group

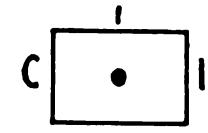



14th Field Artillery Bn (Light)

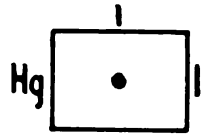
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Original from UNIVERSITY OF MICHIGAN



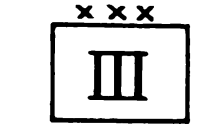

7th Field Artillery Bn (Medium)



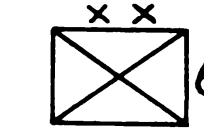

Battery C, 101st Field Artillery



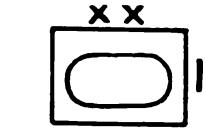

Hq and Hq Btry, 11th Field Arty Brigade



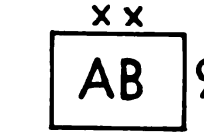

Third Corps



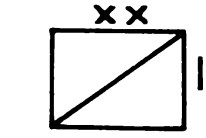

6th Infantry Division



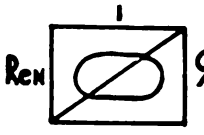

11th Armored Division




9th Airborne Division



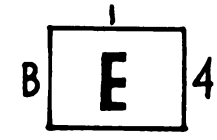

1st Cavalry Division



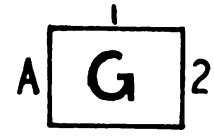

Reconnaissance Troop, Mechanized, 9th Division



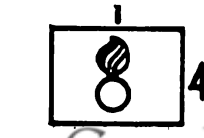

10th Engineer Water Supply Bn




Co B, 4th Engr Heavy Pontoon Bn




Co A, 2d Chemical Bn

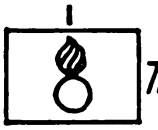



4th Ord Co, Medium Maintenance

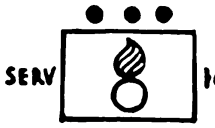
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Original from UNIVERSITY OF MICHIGAN



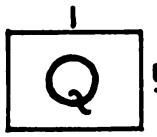

Co B, 8th Ord Maintenance Bn, Armed



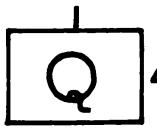

7th Ord Maintenance Co, Antiaircraft



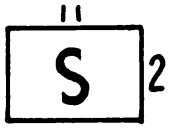

Service Platoon, 16th Ord Dep Co



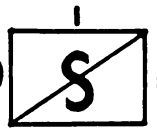

5th Quartermaster Truck Company



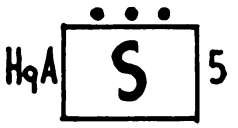

Co D, 4th Quartermaster Bn (Bakery)



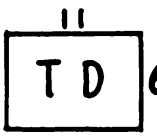

21st Signal Construction Battalion




10th Signal Troop, 1st Cav Div



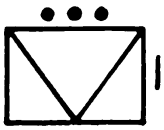

Hq Platoon, Co A, 5th Signal Bn




6th Tank Destroyer Bn (Towed)




Destroyer Platoon, Co A, 2d Tank Destroyer Bn (Self-Propelled)




5th Platoon, 12th Veterinary Co

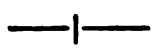
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Original from UNIVERSITY OF MICHIGAN

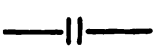
**Boundaries**

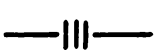
 Squad

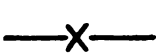
 Section

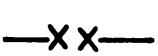
 Platoon

 Company, Troop or Battery

 Battalion or Cavalry Squadron

 Regiment, Group or Combat Team

 Brigade or Armored Combat Command

 Division

 Corps

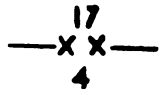
 Army

 Section of Communications Zone

 Communications Zone

 Theater

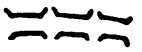
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Boundary between 17th and 4th Divisions



Front Line



Line of Contact (Red for enemy)



Fortifications



Patrols




Main Line of Resistance



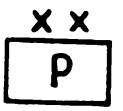

Line of Departure




Light Line

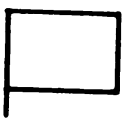



Straggler Line

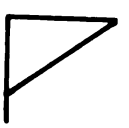



Straggler Collecting Point, Div

**Headquarters**



Headquarters or Command Post



Probable Future Command Post (On axis of signal communication)

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*Examples*




Command Post Theater Headquarters




Communications Zone Headquarters



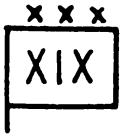

Command Post, Base Section, Com Z



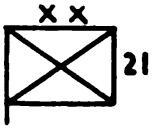

Command Post, Advanced Sec, Com Z



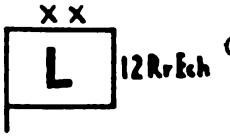

Command Post, Third Army



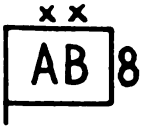

Command Post, XIX Corps



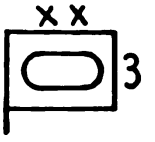

Command Post, 21st Infantry Div



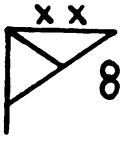

Command Post, 12th Light Div, Rear Echelon



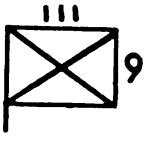

Command Post, 8th Airborne Div



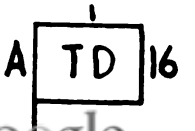

Command Post, 3d Armored Div




Probable Future Command Post, 8th Inf Div



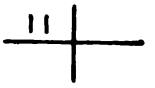

Command Post, 9th Infantry Regt



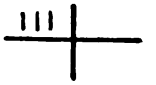

Command Post, Company A, 16th Tank Destroyer Battalion

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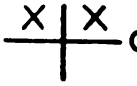
**Medical Corps**



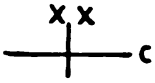

Battalion Aid Station



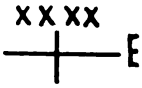

Regimental Aid Station



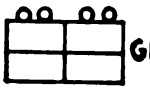

Division Collecting Station




Division Clearing Station




Evacuation Hospital, Army




General Hospital, Com Z

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## Supply Installations



Depot


Supply Point



Distributing Point



Dump



Refilling Point



Bulk Breakdown Point



Salvage Collecting Point



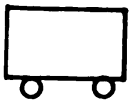
Vehicle or Equipment Park



Vehicle Collecting Point



Division Ammunition Officer


Supply Train (Motor)



Supply Train (Pack)

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## Classes of Supply


Class I



Class II—Class IV


Class III


Class V



Water



Replacements

## Transportation Termini



Railhead



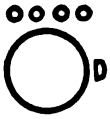
Truckhead



Regulating Station

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Original from UNIVERSITY OF MICHIGAN

**Examples**




General Depot, Communication Zone



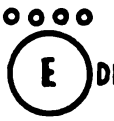

Chemical Warfare Service Branch Depot C, Com Z




Class III Depot A, Com Z




Ordnance Class II and IV Branch Depot B, Com Z




Engineer Branch Depot A, Com Z




Ammunition Depot A, Com Z




Class I Supply Point No. 19, Army




Army Ammunition Depot No. 2




Ordnance Class II and IV Branch Depot No. 1, Army




Replacement Depot, Army




Army Class I Railhead No. 4




Army Ammunition Supply Point No. 6




Quartermaster Class II and IV Branch Depot No. 5

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Army Medical Corps Depot No. 1



Engineers Park, Corps



Water Supply Point No. 3, Corps



Class III Refilling Point, Army



Class III Distributing Point, Div



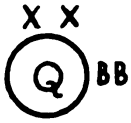
Ammunition Dump, Division



Quartermaster Salvage Collecting Point, Division



Water Supply Point, Division



Quartermaster Class I Bulk Breakdown Point, Division



Ordnance Vehicle Collecting Point, Div

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## APPENDIX III

Answers to Map Problems—Chapter 4

1. RF 1:41,122
2. RF 1:50,000
3. Length of Scale, 2.88 in.
4. Length of Scale, 20.69 cm.
5. 3.168 in.
6. RF 1.12,857
7. RF 1:74,561
8. 9800 meters, 10,700 yd., 6.1 miles.
9. 7750 yards.
10. GM Angle 3° 34′E.
11. Magnetic Declination 13° E.
12. GM Angle 5° 33′ W.
13. Magnetic Declination, Jan. 1946 7° 19′ E.
14. Magnetic Declination, 1 July 1944 6° 29′ W.
15. GM Angle 19° 19′ E.
    True Azimuth 75° 49′
    Magnetic Azimuth 58° 41′
    True Back Azimuth 255° 49′
    Grid Back Azimuth 258°
    Magnetic Back Azimuth 238° 41′
16. Grid Azimuth
    GridAzimuth 147°
17. Grid Azimuth 19° 40′
18. Grid Azimuth 106° (measured)
    True Azimuth 109°
    Magnetic Azimuth 110°
    True Back Azimuth 289°
    Grid Back Azimuth 286°
    Magnetic Back Azimuth 290°
19. Grid Declination at bridge 4° 33′ W (Bridge is at center of sheet)
    Grid Azimuth 215° 40′ (measured)
    Magnetic Azimuth 219° 47′
    Magnetic Back Azimuth 39° 47′
20. 125 meters
21. 328.1 feet (100 meters)
22. 14 meters (interpolating along stream.)
23. Stream Junctions—CANCHE River (814220)
24. Latitude 50° 28′ N, Longitude 1° 34′ E.
25. Latitude 50° 32′ N, Longitude 1° 47′ E.

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# CHAPTER 5

# TROOP TRAINING

## INTRODUCTION

Under conditions of modern warfare it has become increasingly evident that troop training is more important than it ever was. The science of warfare has become far more complex since the years when Alexander the Great pushed into ancient Persia or Caesar into Gaul. We hear until we are tired of hearing it that present day warfare consists of movement, teamwork, technology and supply; they are all household words today.

The purpose of training is to accustom a green soldier to as many as possible of the conditions he will meet when he finally reaches combat. In the case of service forces many of the troops will never be under actual fire and yet their work is still carried out under combat conditions. Experience remains the best teacher and without the slightest doubt the soldier who learns his lesson on the battlefield will learn it much more thoroughly than a soldier subjected only to artificial conditioning—that is, he will learn it far better if he lives. Pre-battle training attempts to subject the green soldier to all conditions he will meet in battle except the factor of death. Compared to an army or mob which has had no training, a well trained army is an army of veterans before it ever reaches battle.

Teamwork, technological skill, supply and movement are the chief components of modern warfare; each requires extensive training. Teamwork in war is much like teamwork in basketball only on a far grander scale. A *group* of stars often fails to function as satisfactorily as a *team* of mediocre players. The average officer and enlisted man has not been used to working with as large a group as he is forced to in the army; he must learn to work with others before he gets into battle. Imagine what would happen if a body of men attempted a landing operation in the face of organized resistance without any previous training in teamwork.

Modern technology requires that a person have a thorough knowledge before beginning actual operations; it grows from good training and plenty of time in which to practice. In the absence of sufficient time—there is never too much—the quality of training must improve. Think of the outcome of the drive across North Africa if the Allies had had no technological training; the battle would have been lost before starting.

The case for supply is no different. Without a thorough knowledge of the principle involved plus time in which to iron out faults discovered in practice, our troops overseas would be lost no matter how proficient they were in combat. The best armies without supplies will lose to inferior troops with good supplies. An outstanding example of this was seen in the battle for Bataan in 1941-42. Our troops received few or no supplies and it was but a matter of time before they were forced to surrender; the outcome could have been different had we been able to move supplies to them, and a more comprehensive understanding of the situation would have provided a better chance for the defenders.

Lastly, movement depends on the smooth functioning of the other three together; without any one of them the mission is doomed. Teamwork is necessary to move forward, teamwork among ground, air, and naval forces and teamwork within each of those. Every man in battle must have some technical knowledge if only how to clean his rifle. And it is in a rapidly moving battle that supply has its hardest job.

In the above observations the subject has been approached largely from a viewpoint far too broad to concern the average officer or enlisted man in the field. It is obvious that the knowledge required to plan a large campaign is vastly more complex than to plan a smaller engagement, yet the training itself remains the same. For this reason, the ensuing chapter will try to give sufficient information for ordnance officers and enlisted men to enable them to function with minimum difficulty, but will purposely omit all material not directly concerning ordnance units. For example, in the discussion of field fortifications there has been no attempt to present the subject in a broad enough scope to provide a textbook for combat

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engineers. Some topics will be stressed because it is felt that they will play a vital part in Ordnance work; others will be dealt with to a lesser degree. All subjects apparently disconnected in the text will be encountered in some degree by ordnance units in the field. Subjects covered, however, are not intended to replace field or technical manuals, but rather to illuminate certain points especially bearing upon Ordnance work.

## TRAINING METHODS AND PROCEDURES

**General.** The combat success of the Army of the United States depends in large part on the effectiveness of the instruction of individuals and units given in the training areas prior to battle. Responsibility for this instruction warrants careful study on the part of all instructors. In carrying out the training program, the instructional staff should constantly bear in mind the following facts:

a. Most men can master the fundamentals of military training if they are well taught.

b. The instructor's keenness and enthusiasm will be reflected by the men he is training. Half-hearted or inefficient methods will carry a heavy penalty later in battle.

c. The student's interest and enthusiasm are stimulated by evidence of satisfactory progress. Give praise where it is due. Encourage effort and correct mistakes at once by constructive criticism.

d. Students are more quickly and permanently impressed with facts when their practical value is made apparent.

e. In teaching men to be soldiers, a good example is more effective than any amount of discussion.

**Stages of ASF Military Training.** This program is divided into five sections. The scopes of training for the five sections are as follows:

(1) *Military Training;* training is the fundamental knowledge and skills that a soldier requires to protect himself and to function as a member of a military unit in combat. Six weeks are allotted for this training.

(2) *Basic Technical Training;* training in the basic knowledge of Ordnance materiel and operations required by all Ordnance personnel. Thirty-four hours are allotted for this training. It is conducted concurrently with Military Training.

(3) *Technical Specialist Training;* training in the specific technical knowledge and skills required by individual trainees in order to accomplish their individual specialist missions. Eight weeks are allotted for this training. Continuation of Military Training is conducted concurrently with Technical Specialist and Field Training.

(4) *Field Training;* application in the field of the knowledge and skills acquired in Military Training, Basic Technical Training and Technical Specialist Training sections. It is practice for the trainee in functioning as a team member of his section. It is practice for the entire personnel of the unit in functioning under simulated combat conditions as a well-coordinated team. Three weeks are allotted for this training.

(5) *Troop Schools;* Troop Schools are an important means for training personnel to meet the requirements of the training program. An average of one hour or more daily should be devoted to troop schools throughout the training period. Unit commanders will conduct troop schools during off-duty hours throughout the training program to:

(a) Refresh junior officers and noncommissioned personnel in basic military and technical training doctrine.

(b) Acquaint junior officers and noncommissioned officers with the latest changes in basic military and technical training doctrine.

(c) Conduct map exercises and command post exercises preparatory to Field Training.

(d) Familiarize commissioned and noncommissioned personnel in methods of conducting training.

(e) Analyze the progress of training and lay plans for the correction of training deficiencies during later phases of the program.

**Principles of Instruction.** The requirements of a good instructor are many. The old saying that instructors are 'born and not made' has been thoroughly disproved

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with the development of our excellent educational system. It is extremely rare that anyone with the proper basic requirements cannot be made into a successful instructor.

Let us assume, to begin with, that one has the basic qualifications mentioned including a thorough knowledge of one's subject. In addition, however, physical and mental fitness at all times are fundamental necessities; therefore, physical and mental training must be continuous (interspersed, of course to avoid becoming stale, with the proper amount of relaxation and recreation.) Aside from these, all the qualities required in the good instructor may be summed up under the general term, personality. Many qualities go to make up personality—so many, in fact, that we can only consider some of the more desirable attributes.

First of all, the instructor must have an even and agreeable temperament so that his students can and will approach him. An instructor with a disagreeable temperament antagonizes his students at once, and that usually means little taught. In general, there are only three causes of a disagreeable temperament: bad health, narrow-mindedness, and inborn meanness. Bad health can often be cured and narrowness of view can usually be broadened by education, but for innate meanness no treatment has ever been successful except the axe. The successful instructor must have some of the milk of human kindness in his make-up.

The appearance of the instructor has considerable bearing. He is constantly in view of his students while teaching. A good part of his prestige will depend on his appearance.

His voice is an intimate part of his personality. The voice reflects the mind to a marked degree. A harsh, rasping, high-pitched, strained voice detracts greatly from the easy reception of the speaker.

Self-confidence is a basic requirement; it carries conviction with it.

Overconfidence, of course, is a bad quality and often the precursor of a downfall.

Dignity is essential in an instructor if he would have the respect of his students. This should not be of the stiff-backed kind that makes one seem unapproachable.

Loyalty is a most desirable attribute of personality. It includes loyalty to prescribed doctrine, to superiors, to fellow-instructors, and also to subordinates.

The important elements in public speaking are reflected in the personality of the instructor; the intangible quality of effectiveness in an address is often dependent, to a large extent, on personal qualities of the speaker. The line of demarcation between "ability" as a speaker and "effect of address" as a result of personality is hard to draw. There are certain fundamental qualities of address which every speech must have; without them, no method can make a speech successful but with them, almost any method will meet with reasonable success. They include:

(1) *Sense of communication.* The purpose of the speech is to communicate ideas. The speaker should get rid of the idea that he is "making a speech". There is no place on the platform for the impersonal attitude, the fishy eye, the colorless voice. Public speaking demands the personal touch.

(2) *Physical vitality.* Next to a sense of communication, the most important quality of a speaker is life, vigor, physical vitality, and animation. Common conversation requires little muscular effort because the listener is close by and easily reached. But when the audience is large and many of them are seated at a distance, the problem is different. Talk to those in the rear; they wish to hear just as much as those in the front row.

(3) *Enthusiasm.* One must bubble over with enthusiasm. "The river never rises higher than its source," and the audience is not going to get any more enthusiastic over the subject than the speaker himself. The speaker should be genuine and earnest; he must believe what he says. "Confidence in one's self, belief and perfect faith in the truth as it is given one to see the truth, these are among the important qualities of a good speaker." We all abominate the twister, the person without convictions. Closely allied to enthusiasm is zeal. It differs, however, in that enthusiasm is the outward show of interest, while zeal is an inward and less conspicuous manifestation.

(4) *Conviction.* At times, the instructor at a military school will have to exert himself to the utmost to attain this quality, for military science is not an exact one. One must often speak on a controversial question and must advocate

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views approved by the school even though one is in disagreement or is not wholly convinced. Here, loyalty to superiors and to the school must be the incentive enabling one to lay aside his own opinions, and genuinely, earnestly, and effectively to expound the approved doctrines and methods.

(5) *Humor.* In being earnest and genuine, do not be long-faced, solemn, funereal. A sense of humor is one of the greatest assets to a speaker.

With these qualities, a speech may succeed in spite of poor voice, poor gesture, and poor English. On the other hand, crudities of style such as an awkward appearance, a rasping voice, speech so soft that it cannot be heard, eccentricities of manner, etc., may completely offset the sense of communication.

**Teaching Methods.** *The Lecture.* The lecture is perhaps the most common method of instruction. Its frequent and continued use in the Army, in schools, and over the radio indicates that it has been found to possess many values, the most important of which are discussed in the following paragraphs.

Many ideas can be presented in a short time. Words are the most common means of transmitting ideas. Although things seen are sometimes more impressive than those heard, our system of communication rests largely on spoken and written words. Ideas, expressed in words, can be organized concisely and logically presented to an audience in rapid sequence.

Lectures can be given to large groups. The only restriction on the size of a lecture audience is the carrying power of the speaker's voice and this limitation is overcome when a public address system is used. A forceful speaker can instruct hundreds or thousands of men at one time. Naturally, most lectures are given to smaller groups but, with the exception of the motion picture, no teaching technique is so well suited to large numbers of people.

Lectures can provide basic material. They are useful in bringing soldiers with varied backgrounds to a common understanding of relevant facts, principles, and attitudes. Familiarizing new recruits with the fundamentals of such broad subjects as Articles of War, personal hygiene, and military courtesy, or with more technical subjects such as signal communication, ammunition and small arms is quickly accomplished. Bridging the gaps between what students know and what they are expected to learn, and orienting them to new ideas or skills can also be expedited through lectures.

Lectures are effective introductions to directed discussions. Worthwhile discussions are possible only when a class knows something of the subject matter and is in readiness to discuss it. Lectures are one means of readying the class for a discussion.

Lectures can give direction to demonstrations. Few, if any, demonstrations are meaningful unless preceded by a lecture, however brief, in which the students are informed of what they are to see. A demonstration sprung on a class without an adequate introduction seldom leads to satisfactory achievement of the desired goals.

Lectures can be used to summarize materials rapidly. Because of the speed with which ideas can be presented in a lecture and the large number of persons to whom it can be addressed, a lecture is an ideal teaching technique for summarizing large phases of instruction.

Effective lectures are brief and well illustrated. Long lectures, or those not illustrated, usually defeat their own purpose. Those which are brief and well illustrated do not permit boredom to occur. Few lectures in basic or specialist subjects will be longer than 15 minutes.

**Cautions in Use of the Lecture.** (a) Presenting too much material too rapidly. The enthusiastic instructor may present his subject more rapidly than his students can absorb it. The learning which results from lectures is not easy to check while the lecture is in progress and unless considerable caution is exerted, the instructor may make unwise assumptions about the progress of the class.

(b) Forgetting the students. When the lecture technique is used, there is a tendency for the instructor to become so interested in what he is saying that he forgets his students' backgrounds and attitudes. Loss of student interest is the result.

(c) Neglecting to develop public speaking techniques. A lecture often is little more than a dry recital of facts. It should be an interesting presentation, an occa-

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sion to which the instructor should rise. Excellence in public speaking lends assurance that a lecture will be effective.

(d) Failing to vitalize lectures. It is often necessary for an instructor to give a lecture on the same subject many times. Unless it is continually improved and revised, there is a tendency for the lecture to become dull and routine. Even the instructor loses interest, but not, unfortunately, until some time after he has lost his students' attention. Altering the content and organization of a lecture, bringing in new illustrations and stories will kindle the interest of both the students and instructor.

(e) Failing to use visual aids. Lectures should be illustrated with charts, diagrams, blackboard illustrations, films, models, and the like. Such training expedients require advance planning and are sometimes cumbersome to handle. This, however, is no excuse for failing to make a lecture something more than a mere verbal presentation.

*Conference.* The conference method of instruction is a directed discussion of a subject. A conference may be used for a detailed discussion either of text material, which has been studied by the class, or of a subject presented to the class by the instructor. Conferences are most often concerned with the application of a doctrine or procedure to specific situations. This method presents or explains ideas, as does the lecture method, by use of the sense of hearing. It has a distinct advantage over the lecture method in that it enables the instructor to determine readily whether his ideas are making the correct impression and allows the student to clear up by questions those points which he does not understand.

Although a conference does not require a long discourse, as does a lecture, it requires more preparation, skill, and alertness on the part of the instructor. In preparation he must anticipate pertinent questions and be able to give sound reasons for the correctness or incorrectness of all points at issue. He must be skilled in leading the discussion in such a way that the minds of the students will be kept on the subject under discussion. He must be alert to guard against loss of control of the discussion. Questions of general interest are encouraged in order to expose and clear up obscure and difficult points. Irrelevant and inconsequential questions, which lead away from the subject or waste time in discussion of trivial points, must be skillfully avoided.

There are two general types of conferences, the informational type and the developmental type. In the informational type, the instructor states facts which he wishes the students to learn and answers questions asked by the students to clear up points which are not understood. This type transmits facts from the mind of the instructor to that of the student. It is used when the instructor is sure that the ideas transmitted will be accepted as true by the student.

The developmental type of conference requires the student himself to develop the ideas which the instructor wishes to teach. Leading questions are put by the instructor and are answered by the student, who uses his own reasoning and judgment. This method requires the student to have sufficient basic knowledge of the subject to work out a reasonable answer to the question which the instructor asks. The instructor is enabled to impress the essentials of the subject on the student's mind, and the student develops confidence in his ability to think his way through problems in the subject under discussion.

When the conference method of instruction fails to evoke response and interest, it may be assumed that another method of presenting the subject should be employed.

*Demonstration.* A demonstration is an accurate portrayal of a subject or procedure to be taught. A well-planned and carefully presented demonstration is one of the most effective methods of instruction in basic, technical, tactical, and logistical subjects. The demonstration is based on the fact that seeing an object or procedure usually makes a more rapid and lasting impression on the mind than the other senses produce. A demonstration is always preceded by a thorough explanation of the work to be demonstrated and therefore is not a distinct and separate method of instruction. Demonstrations used in conjunction with other methods of instruction add to the instructional value of the other methods.

A demonstration demands considerable preparation on the part of those concerned with its execution. Preparation includes a careful study of the subject,

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complete plans based on the result of such study, and finally, repeated rehearsals by all personnel involved in the demonstration. The demonstrations should not only convey to the student a clear and accurate picture of the subject or procedure, but also set up a standard of excellence which he or his group must attain. It should arouse admiration in those for whose benefit it is given and should stimulate a desire to emulate it.

The many time-consuming factors in demonstrations, preparation, and rehearsal of the necessary troops, time required to set up facilities and equipment, time lost in taking the group to and from observation points, are all eliminated by the use of training films. In planning instruction, FM 21-7 should be consulted, and full use made of the available training films for demonstration purposes.

*Preparing for a demonstration.* The first requirement for any presentation, if it is to be worth the time it takes to give, is that it must occur at a time when an actual need is present and when its value is fully appreciated by the learner. Next to this requirement comes the necessity for careful planning of the performance. If the demonstration is to be a job operation, go through the performance beforehand, making an analysis of each move and step as you go. A written list of these steps will serve further to guide the future demonstration. Skilled specialists perform many of their acts so frequently that they are seldom conscious of all the factors that make a skillful one. Many movements and procedures have reached the stage of habit, so that consciousness of their existence is no longer required. In fact, the more skilled the worker, the less apt he is to realize the detailed nature of his accomplishment The reader may prove the validity of this statement by first listing the steps and important points in some skill which he possesses to a high degree; then perform the skill, listing as you proceed, each teaching point. Compare the two and note the omissions in the first list. It is interesting to discover how few people can describe or write out directions for tying a four-in-hand tie without actually performing the act and carefully studying the sequence.

A few trials or experiments will convince the instructor that careful thought must be given to the preparation of an effective demonstration. In addition to the operation analysis already explained, the instructor should:

(a) Anticipate those steps which may cause the greatest diifficulty and provide some form of supplemental instruction to clarify the point.

(b) Have all materials and equipment needed for the demonstration at hand and within easy reach.

(c) Be sure that everything works as planned, testing it in advance to be sure.

(d) Go through the demonstration as a reheasal before the actual presentation.

(e) Remove all possible distractions before the demonstration begins, e.g., unnecessary noise, glare, unused equipment, etc.

(f) List on paper the points you want to get across.

(g) Plan short demonstrations. Two short demonstrations with an intervening period of application are better than a longer single presentation.

Well-prepared demonstrations assure consistently good presentations and reduce student error and individual instruction to the minimum, thus making for high teaching efficiency.

*Suggestions for improving the demonstration.* Even a well-planned demonstration cannot realize its full value unless well presented. Just as in all other phases of teaching, there is technique in making a good demonstration. Some of the main points are:

(a) Do the performance yourself in a most skillful manner; so well, in fact, that it will incite wonder and admiration for your ability. Avoid the danger, however, of overawing the student to the point of discouragement or of creating an impression that you are showing off.

(b) Explain each step as you perform it, telling *why* as well as *how* whenever it can be done without going into a lengthy discussion.

(c) Be sure that everyone can see, because the worth of a demonstration is measured by its visual appeal. Use large objects, equipment, and drawings. See that glare from light sources and shiny surfaces is avoided; the light source should be invisible whenever possible and always outside the line of vision, but be sure you have sufficient illumination on the demonstration. Hold your

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work up where all can get a good view and stand at the side of your work, particularly when it is on the board back of you.

(d) Support your demonstration with pictures, charts, diagrams, models, slides, movies and printed instruction material. These aids will help in interpreting your demonstration for individual students. They clarify obscure points, provide material for continued study, and serve to emphasize important points. Visual aids are just as valuable in a demonstration as they are in any other method of presentation.

(e) Question the students as the demonstration progresses. This serves as a guide to their thinking, stimulates their attention, and checks the effectiveness of your instruction. If some point in the presentation doesn't "get over" clarify it immediately, while the point is still fresh. Remember that all the subsequent portion of the presentation may be lost for want of a better understanding of the first part.

(f) Have all students see the demonstration from the angle in which they will see it when they do it themselves. A teacher facing a group actually reverses his motions with respect to the learner. In certain cases such as the demonstration of the tying of a knot, arranging objects in a definite form, using a rule, etc., this reversed procedure becomes more confusing than helpful.

(g) Have only one thing going on at a time. While explaining as one goes along is good practice, there is danger that merely talking continuously will in itself become a counterattraction which divides the interest. The magician makes great use of the art of counterattraction. Converge or focus attention on one thing you are doing; do not disperse it by side shows or mental byways.

(h) Speak clearly and distinctly, but not necessarily loudly. Speak deliberately but not without animation; above all avoid a monotone. Express as much interest in what is going on as if you yourself were doing or seeing it for the first time. Incredible as it may seem, an instructor's attitude reflects itself noticeably in the students' reactions.

(i) Keep the demonstration short. Two important factors operate against long presentations: the interest span for the average person rapidly approaches a limit after twenty minutes, and the ability to retain that which is seen and heard has decided limits, after which the effectiveness of instruction drops off rapidly.

(j) If students are grouped around the instructor, let him take time at the start to see that the short fellow is in a front line position and the taller ones at the back. Form a large enough circle so that all can see without crowding or climbing on top of chairs, boxes, equipment, or one another. Physical discomfort is as much a distraction as noise; therefore, see that everyone is as comfortable as circumstances permit.

(k) Frequently, at the beginning of a demonstration, it is wise to go through the entire performance with the same speed and skill one would use on the job, as a means of giving the learner an over-all glimpse of what you are trying to accomplish. A slower performance, accompanied by explanation and discussion, may then follow as the means of getting the detailed information across, but make sure that in slowing down your performance for demonstration purposes you do not lose the technique employed in performing at the usual rate.

The demonstration can be used to advantage in several ways in meeting the instructional problems. While its most common use is that of transmitting new instruction in formal lesson presentation, it can also be employed to present work procedures when the background experience of the group is insufficient to help them interpret oral or written directions for new work. It can be used to establish, by example, standards for workmanship or to arouse interest and furnish an incentive for further accomplishment. And it can develop a basis for understanding and appreciation of the related processes not essentially required in the job.

The field of technical duties is so broad that it is impracticable to give illustrations of the use of this method in teaching them; however, it may be applied to nearly all technical subjects with profit and with a saving of time.

In tactical training, demonstrations usually show the movement and functioning of groups of individuals or units in combat. Since most tactical exercises are intricate and complex, demonstrations for the instruction of enlisted men should be limited to those by the company and smaller units. Demonstrations of tactical

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exercises by units larger than the company are generally used only in the instruction of officers.

*Individual Performance.* Men should apply their learning as soon as they have mastered the fundamental ideas of a lesson or the basic operations of a procedure. The time for practice is as soon as the men are ready. For example, a brief demonstration in the use of the sighting bar, together with a discussion of principles involved, will usually be sufficient to get the men ready to use this training device. On the other hand, teaching the preparation of the morning report is more complex and requires a longer explanation and demonstration than that required for the sighting bar. As soon as the students know the principles and procedure involved in keeping this report, they should be given practice in the actual handling of field problems.

Procuring the equipment and space necessary to provide each student with an opportunity to apply what he has learned is a major problem of instruction. The fullest possible use of the equipment can ordinarily be made by a careful scheduling of the lessons to take advantage of the available materials.

The amount of practice depends upon the type of material, the stage of training, and the total length of time available for instruction. When the training time is limited, it is desirable to concentrate practice on the limited number of fundamental skills and principles. For example, because learning to put on a gas mask is simpler than learning the tactical principles of a penetration, less time will be required for the practice on the gas mask. Mastery in either case, however, can be secured only through practice. The time devoted to application also depends upon the stage of training; the advanced stages of instruction will emphasize application more than will the beginning stages. In all cases, practice should be continued until the student is able to perform the operation correctly and with the expected degree of skill; there is no set time limit for this stage of instruction.

The instructor in this stage of training is a supervisor. He should be sure every student understands what he is to do. Although the instructor's presentation may have seemed complete, he should circulate rapidly through the group to see that every student knows the "what, where, when, why and how" of the lesson. The instructor can ask questions or observe students to be sure each of them has started properly. He should help men who are having trouble and repeat the explanation or demonstration if he finds that the majority of the students have missed certain fundamental points. He should be sure each step of the procedure is mastered and reviewed before presenting the next one, but he should raise the standards of performance after the students have had an opportunity for some practice or have been given additional explanations and demonstrations.

He should always be careful not to help the students too much. A word of caution, a brief correction, a question, "Why do you do that?" or "What is the purpose of this step?", will usually be sufficient, provided the explanations and demonstrations were adequate. If the instructor finds that more assistance than this is needed, he should carefully check his lesson plan and revise the presentation step to overcome difficulties which have developed during the application stage.

Learning by doing requires first, that the student understand the problem and second, that he be able to apply the correct procedures to its solution. Frequent student performance is necessary for the development of speed and accuracy in execution. In order to prevent wrong learning and the formation of faulty habits, however, student performance must be supervised by the instructor. The instructor must be on the alert to prevent the formation of faulty habits of procedure or thinking, because, once formed, they make the learning of correct procedures and principles much more difficult. It is only through careful supervision of the application that faulty habits can be detected and eliminated before they become a hindrance. The instructor should ask questions, observe the students at work, and check the solutions of problems.

One phase of supervision is setting the standards of achievement to be attained by the student. An effective motivating device for this stage of instruction is competition. The students can compete with their past records, with each other individually and in groups, or with standards set by the supervisor.

*Group Performance.* The group performance method of instruction may be used ing the training of any group, regardless of size or organization. It provides careful.

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simultaneous learning under the direct supervision of an instructor, and centralizes control within the group for the purpose of teaching the mechanics of any subject. It is particularly valuable when there is a lack of well-trained instructors and is an excellent method for use in introductory training, especially in instruction on basic subjects. It consists of four distinct steps, as follows: (a) Explanation of the subject or action by the instructor (preparation of the student).

(b) Demonstration of the subject or action by the instructor or his assistant (presentation).

(c) Imitation by all undergoing instruction (application).

(d) Correction of errors by the instructor and his assistant (check-up).

The group performance method is excellent for instruction in various technical operations by the slow-motion or step-by-step procedure. After explaining and demonstrating the action, the instructor performs each step slowly, accompanying the action with a detailed explanation. Each student imitates every movement made by the instructor while assistant instructors verify the correctness of the students' movement. When a large group is being instructed in this manner several assistant instructors are placed so that all students can see one instructor clearly. These assistants all go through the slow-motion action simultaneously.

*Coach and Pupil Method.* The coach and pupil method logically follows the group performance method and should never be used as an introductory method of training. Its greatest usefulness will be found in instructing large groups of individuals that have passed through other methods of instruction and have mastered many of the subjects of basic military training. In this system individuals are paired off and, acting alternately as coach and pupil, teach each other the procedure previously explained and demonstrated by the instructor. Properly applied and supervised, this method causes the individual to think as well as to do, stimulates his powers of observation, increases his alertness, trains him in giving commands, and adds to his individual value by providing him with a detailed knowledge of training matters.

*Map Maneuvers.* Map maneuvers may be either one-sided or two-sided. In the one-sided maneuver, players are assigned to one side only, the enemy movements being controlled by the director. Its principal value lies in practice in the technique of orders, staff procedure, and troop leading. The director can, through his control of the action of the enemy, conduct the progress of the play so as to bring out the application of the tactical fundamentals which he wishes to illustrate. By means of prepared messages, staff work and teamwork may be emphasized. In the sequence of instruction the one-sided map maneuver usually precedes the two-sided

In the two-sided map maneuver, players are assigned to both sides, the development of the maneuver is much more free and therefore more interesting to students. The control of a two-sided map maneuver may be quite close or can be completely free. This type of maneuver gives opportunity for instruction in the formulation of decisions and orders, in the application of tactical fundamentals, and in the exercise of command and staff teamwork. Map maneuvers should not be employed as a means of instruction until the student is well grounded in tactical doctrine.

*CPX.* Command post exercises can vary in nature from an exercise that closely resembles a map maneuver to exercises in which all command posts and communications actually are installed on the ground. In the first type, command posts are grouped in one location, no special communications are available, and all communications are by messenger service supplemented by local wire lines. Air service is not used and the enemy is not outlined on the ground. In this case umpires should impose normal time for the transmission of messages. At the other extreme is the exercise where the command posts are separated by normal distances, signal and headquarters troop units are employed, all means of communications are used, air service participates in its normal role, and the enemy is outlined on the ground. A scenario is prepared to serve as a guide for the progress of the play. The scenario is usually supplemented by a general control map which governs the more detailed control maps of the umpires. All extensive command post exercises should first be played out as map maneuvers by the directing personnel.

**Training Aids.** a. *Blackboard.* A blackboard is useful for illustration both indoors and outdoors. The following data will be helpful to the instructor:

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(1) Listing on the board:
  (a) Operations
  (b) Nomenclature
  (c) Divisions or units of lesson
  (d) Examination questions
  (e) Assignments
  (f) Supplemental information
(2) Illustrations (developmental drawings preferred) as:
  (a) Pictorial
  (b) Plan
  (c) Three-view
  (d) Schematic

The blackboard helps to hold the interest of the class by eliminating lengthy explanations of those materials or operations which cannot be clearly or adequately portrayed by the use of words. It causes students to use their "seeing" sense thus reducing the amount of talking during instruction. It limits discussion but allows the instructor to explain things step-by-step. It emphasizes points in the discussion, provides a supplement for students' notes, but remains a convenient, quick, and removable record of words or pictures for student recitation or problems.

In using the blackboard write, print, or draw legibly and heavily enough so it can easily be seen from the last row. Stand to one side rather than in front of the blackboard while talking in order to speak to the students and not to the board. Arrange the class so that the recorded data are clearly visible to all students; avoid glare.

Draw or write quickly so that class interest will not lag, but avoid talking when you draw. Keep data or drawings in good order so that the board does not become an unreadable incoherent collection of material by erasing that which is irrelevant or no longer pertinent but check with students before erasing to make sure there are no further questions about the recorded data. Use a cloth or eraser to remove work or to correct errors (never use your hand) and use a pointer, not your finger, when explaining.

Practice writing and sketching before the class meets so as to improve your showmanship. When you do write in front of a class rotate or incline your chalk so it will not be perpendicular to the blackboard in order to prevent squeaking.

Time consuming drawings or data should be put on the board before class; this saves valuable class time.

b. *Models.* Models are used for a variety of purposes. They substitute for actual objects which are difficult to procure or to use in the teaching situation. They explain the operating principles of a complex mechanism. A large-scale model or one with cutaway parts shows the parts and movements ordinarily hidden from view in the actual object. They can be made to give an over-view of an operation, structure, or process. For this purpose, reduced scale models are generally used. A sand table or model enables students to see the whole plan of tactical operations and gives them an appreciation of each combat unit's part in the exercise. Likewise, they can show students some phases of the construction of barracks for example, and the installation of the heating and plumbing systems more readily than could be seen from studying full-size, completed buildings. Models determine aptitude for learning or give preliminary practice in a skill.

A model should be convincing representation of the actual object. A high degree of realism is essential in models, for inaccuracies will distract attention from what is to be learned. Considerable skill is necessary to produce a model satisfactorily realistic in operation, form, and color. It should also be of suitable size for teaching purposes. All students should be able to see easily any training aid used in teaching. Thus, if a large class is to receive instruction in tactical operations, the model must be sufficiently large, so that all students will be able to follow the demonstration. On the other hand, small groups of students can readily see scale models. It must be durable in construction. If models are to be used many times by different instructors, they must be solidly constructed of durable materials. This is especially important if they are to be moved from one class to another.

But though durable it must be convenient to handle. A few models can be permanently installed in classrooms, but this is the exception rather than the

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rule. Such models must be covered or otherwise hidden when not in use in order that they may not detract from attention of other classes. Consequently, when models are designed and built, considerable thought should be given to making them convenient to move.

c. *Sand Table.* All officers and noncommissioned officers should be familiar with Training Films 7-265, Sand Table—Part I, "Preparation" (running time, 27 minutes) and 7-266, Sand Table—Part II, "Use" (running time, 27 minutes). Together they constitute an excellent treatment of the problems involved in the construction and utilization of the sand table as a training device. Additional information may be found in Training Bulletin GT 17, "Use of the Sand Table in Tactical Training of Small Units," published by the Infantry School, Fort Benning, Georgia.

Although the sand table is particularly adapted to instruction in infantry tactics, it has many uses which make it especially valuable to any ordnance unit engaged in the execution of a mobilization training program. It can be used to advantage in any stage of instruction from basic training to advanced troop school. Some of its ordnance uses are map reading, convoy operation and methods of evacuation, railhead and truckhead operation, selection and layout of a bivouac area, and organizational layout in combat zone.

d. *Training Films and Film Strips.* The use of training films and film strips as instructional expedients in Army training programs has brought about many improvements in teaching procedures. Their use has made it possible to teach in the classroom many phases of military training which otherwise would require extensive equipment, special situations, lengthy rehearsals, and considerably more time. Procedures can be demonstrated at normal speed or in slow motion so that every member of the audience can see exactly what is taking place. Training films set uniformly high standards of achievement because they show to all students operations and procedures as performed by experts. It may well be said that no instructional program is complete without training films and film strips.

Films should be selected and used when they will serve the needs of the training situation better than other devices or methods. They must always be chosen so they will be an integral step in the attainment of the objective. They should never be regarded as rainy-day substitutes, nor should they be used because the instructor has not prepared his lesson properly. Before using either a training film or film strip in a class, the instructor should study it—several times if necessary—in order to be thoroughly familiar with the contents.

Every instructor should carefully read paragraphs 1 to 8 inclusive, FM 21-7, and paragraphs 78, 79, and 80, FM 21-5. TF 7-295 and FS 7-75 present many useful suggestions.

The available training films and film strips are listed in FM 21-7 and supplements; paragraphs 5 and 6, FM 21-7, give information on their distribution. If needed films are not available at the training center film sub-library, they should be procured by the officer in charge well in advance of the time when they are needed.

e. *Actual Materiel or Equipment.* Actual objects are so widely used in Army training programs that little comment is necessary. Tanks, motor vehicles, rifles, mortars, gas masks, and switchboards bring vivid reality to the training program and intensify learning to a marked degree. All other training aids are either substitutes for or supplementary to the use of actual objects.

Other training aids, however, used in combination with actual objects, will frequently speed the students' understanding of how the object functions. The important point to remember is: no single type of training aid is sufficient for the great majority of lessons.

f. *Charts and Diagrams.* Drawings made to represent a fact, a group of facts, or an idea to help focus the attention of the audience in all methods of instruction. Most charts consist of line drawings accompanied by explanatory words or figures. The drawings should express the thought so clearly that few words or figures are required. Many charts on technical subjects, particularly in the care and operation of weapons, materiel, and equipment have been prepared by the procuring services or are available in the technical manual.

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Charts must be sufficiently large and clear to be distinct to all members of the class. They may be prepared by the use of film strips and lantern slides.

The instructor should stand to one side of a chart when discussing the material on it. He should not look at it except when pointing to a specific thing. Charts should be withdrawn or covered after use unless there is a definite reason for leaving them displayed to the class. Where sliding boards are not available, charts may be hung on an easel and folded over the top after use, or they may be built up and then uncovered successively.

**Types of Tests.** A test or examination is any device that is used to evaluate student performance. Tests may be used to estimate the degree of skill or amount of information a student has acquired, or to indicate his aptitudes, attitudes, abilities, and personality characteristics. The different types of test situations most frequently used in the Army may be classified as to purpose and form. A test classified by purpose is a selection or aptitude test, in which the knowledge or skills of the students are used as a basis for selecting men for training. Tests of general ability to learn or to profit from special types of training are widely used in the Army, as are achievement tests which are used to estimate the degree to which each student and the whole class have mastered the materials taught, as well as to indicate specific gaps or strong points in the students' learning. They also may be used to measure student attainment and instructional efficiency. Such tests are the ones most frequently used by Army instructors.

Tests may also be classified according to their form as per example oral question-and-answer examinations. Oral questions are used by instructors in nearly every lesson. In order that the evaluation may be accurate, as much care must be used in devising good oral questions as is used in constructing good written or performance test items.

Another type is the written test, in which the student records his responses in writing. Written tests are used in almost every course at one time or another, perhaps most frequently as final examinations. Their greatest value is in measuring rapidly the degree of information which a student has; but in a comprehensive examination program, they must be supplemented by performance tests and observations.

A third type is the performance test, in which the student carries through an operation or procedure and is graded by the instructor on the quality of his work, as well as on the speed and accuracy of his performance. Such tests are the most direct method of measuring the ability of the student to do a job and should be used whenever possible. Examples are having students make wire splices, set up machine guns, or fill out morning reports.

The last type is the observation test, in which the instructor or an observer uses a check list or a rating form, or summarizes the results of an interview. Observation techniques are the greatest of importance in Army training because many phases of student achievement and behavior, such as leadership, cooperativeness, initiative, and persistence cannot be evaluated by the more formal types of test situations. Consequently, instructors, platoon or company commanders, or officers in charge of training will use check lists, rating forms, and interviews to secure a more complete picture of the student's performance.

There are five main purposes for tests.

(1) *Evaluating Learning.* One of the most important tasks which an instructor has is to determine how well his students have mastered what they have been taught. To attain this goal, each instructor must make frequent and accurate estimates of the student's performance. Properly constructed examinations will assist instructors in making these estimates.

(2) *Insuring Fairer Standards of Evaluation.* Frequent tests are one of the best ways of evaluating students fairly, and their use tends to overcome the inaccurate and hasty judgments and opinions of a student's performance. Tests also help to establish fairer standards upon which to appraise students in situations where different instructors handle the same class. The frequent use of good tests results in greater fairness to the men and in greater over-all efficiency to the army.

(3) *Discovering Gaps in Student Learning.* Tests may be used to discover specific weaknesses or gaps in the student's mastery of information and skills. Such weaknesses can then be corrected by repeating the instructional materials

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(4) *Aiding Learning.* A test is a teaching device in that the students tend to remember longer and more vividly the points covered in an examination. Tests given periodically will encourage the students, as well as the instructor, to review the materials that have been presented and to organize the different phases of instruction in to a meaningful set of skills and information.

(5) *Evaluating and Improving Instruction.* The results of a well-planned testing program will assist the various commanders in evaluating and supervising their instructional program. The test results will indicate whether or not the students are measuring up to predetermined standards of performance and whether or not an instructor is presenting all the important points of the lesson properly. Thus properly constructed tests are measures of instructional efficiency.

In evaluating examination results the simplest form of grading and the commonest, that of 0 to 100 with 70 as passing, is recommended. Many of the jobs of performance required in the Ordnance Department, however, do not lend themselves so readily to numerical grading.

There are two types of grades, one for written or oral examinations (theory) and one for practical or shop work. The weight that is given each of these grades for a final grade will vary with the type of training being given. In a training school where the study of theory and recitation only is required, the examination or theory grade is the only grade; but if the students are training part of the time in the shop and the balance of the time in class, then their practical work must be graded and balanced with their theory grade. Finally, when all the training is on a performance basis only, the practical grade is the only one necessary.

The weight given these two types, when the students are taking both theory and practical work is illustrated by the grading of students in the automotive and the instrument repair sections of the Ordnance School. The weights given in the former section are: practical work—60%, theory—40%, while in the latter section they are; practical work—75%, and theory—25%. It is the responsibility of the Director of the training program to decide on the weights given, taking into consideration the relative importance of theory and practice in the training.

**Blackboard and Demonstration Techniques.** Next to his voice the most flexible instrument of instruction available to the army instructor is the blackboard. As a teaching aid it is practically indispensable. It must however be employed with a certain degree of skill or the results are likely to be disappointing. Fortunately, almost any instructor can learn to use the blackboard effectively. All that he has to do is devote a little time and thought to a consideration of the general principles which underlie good blackboard work and then use a little common sense in their everyday application.

Why do some instructors fail to use the blackboard more than they do? Why do so many persist in considering it to be no more than a feeble substitute for other visual aids? If you ask them they usually have one of three answers. They say:

"I can't draw."—There are two things wrong with this answer. First, it indicates a very narrow conception of what can be done with the blackboard because it implies that a blackboard should be used only for diagrams and drawings. In actual fact, diagrams and drawings constitute only a part—and not always the major part—of a skilled instructor's blackboard work. Secondly, this answer is based on the erroneous belief that in order to do a good job with a blackboard the instructor must be something of an artist. Nothing could be further from the truth. Naturally a little artistic ability comes in handy, but there is plenty of hope for anyone who knows the difference between a straight line and a curve and who is willing to recognize the fact that the ability to handle a piece of chalk—like anything else—requires a bit of practice.

"My handwriting is pretty bad."—This answer doesn't stand up either. Once you get used to writing on a vertical surface it is actually easier to write legibly on a blackboard than on a sheet of paper. Anyhow, what's wrong with printing?

"Blackboard work takes too much time."—Actually, the blackboard saves time by allowing the instructor to take full advantage of two very important rules of learning: namely, the sense of sight—the most efficient of the five senses.

The more sense channels employed by the student in any learning situation the more certain he is to get a correct picture of the thing being taught. In addition,

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blackboard work helps the instructor place greater emphasis upon the important points of his lesson. Class discussion is more easily controlled. The instructor who hesitates to use the blackboard because he thinks it will slow him down isn't aware of the immense difference between covering a subject and teaching it.

As a visual aid the blackboard possesses certain advantages which explain its special value as a teaching device. It is convenient, adaptable, progressive and active. Several of the more important types of material which can be listed to advantage are steps in operation, main point in a lesson, nomenclature and strange names, summaries and outlines, sources of references, assignments and, of course, examinations.

In like manner some of the types of material which can be illustrated to advantage are materiel, flow diagrams (as distribution of requisitions), complicated theories (as the molecular theory), geographic and tactical situations, and plan, three-view, schematic or pictorial drawings.

*Blackboard Work Should Be Planned.* In order to avoid some of the errors commonly found in blackboard work, the instructor must keep in mind a principle which applies to all visual aids but which is especially applicable to the blackboard; it is just as easy for a visual aid to convey an erroneous sense impression as a correct one. For this reason it is absolutely essential that the instructor plan his blackboard work carefully in order to have it function as an integral part of his lesson rather than as a series of interruptions. To do this the instructor should ask himself these questions: What parts of this lesson are important enough to emphasize by putting them on the board? What diagrams can I use to get the difficult points of this lesson across? How can I use the blackboard to help the men take the notes I want them to take? Will any of this blackboard work consume too much time? Would it be better to have it mimeographed? Should it be placed on the blackboard before the class starts? What will this material look like when it is on the board? Is there any of it which should be left up there for the entire lesson? On which part of the board should each of these items be placed? Will they stand in some logical relationship to each other? Do they supplement other visual aids?

Use the blackboard for what it is, a means of communication: It is a sort of visible "voice" and the instructor must decide not only what he wants to say but also exactly how he wants to say it. He must be careful to plan his work so that when he uses the blackboard to "speak" to his men he will say what he wants to say as emphatically and clearly as possible. The usual board is a good deal longer from left to right than it is from top to bottom. Unless the instructor takes this fact into consideration he is likely to find that his drawings will become crowded and out of proportion. When writing on the board avoid using unnecessary words. Provided the meaning is clear, a phrase is better than a sentence; a word is better than a phrase.

Avoid talking to the blackboard to such an extent that class contact is lost: It is practically impossible for an instructor to make any extended use of the blackboard without occasionally talking in its direction. There is nothing wrong with this. There is, however, something very definitely wrong with the instructor who becomes so involved in putting his material on the board that he turns his back upon the class and seems to forget that it exists.

Blackboard work is a one-man job. If it is poorly done, if it is confused and inaccurate, if it is lacking in sharpness and emphasis, there is only one man to blame. The instructor should get into the habit of being as critical of his own blackboard work as he is of the charts, films and film strips supplied him by others. In no other way will he ever learn to get the most out of what is, beyond a doubt, the most potent training aid at his disposal. No other aid allows the instructor so much opportunity to give free play to his ingenuity. No other aid can do so much to help him solve the many problems which make up his teaching day. Not until he has learned to use it effectively will his work take on the sureness and certainty that is characteristic of the skilled worker in all trades and professions.

**Platform Presence: Speaking Technique.** While many of the considerations which enter into successful public speaking do not apply to the military instructor, a knowledge of the theory and practice of this subject is of great value as a means to effective instruction.

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To make an effective speech, the speaker must be sure of what he says, sure of its soundness, and sure of its clearness and coherence. This demands preparation of a most thorough kind. He must analyze the subject, determine the specific aim of his discourse, collect, evaluate, and select his material, and then decide upon what he has to say and how he is to say it. This process is usually simplified for the military speaker for the reason that higher authority assigns the subject and indicates the purpose. The military speaker is concerned chiefly with holding the interest of his audience and with transmitting his ideas clearly in simple words.

There are certain fundamental qualities of address which every speech should have: A sense of communication; physical vitality; enthusiasm; poise and control; genuineness and earnestness.

The purpose of the speech is to communicate ideas. Get rid of the idea that the speaker is "making a speech"—he is not talking at people; he is talking to people. There is no place on the platform for the impersonal attitude, the fishy eye, the colorless voice. Public speaking demands the personal touch, interest in the listeners, and a very strong sense of talking to them. The audience is made up of human beings and when this is kept in mind the speaker is apt to be conversationally direct and to get and keep his sense of communication with them. In order to achieve this sense of communication, the speaker must think as he progresses, not mechanically repeat words, but focus his attention on the ideas to be conveyed. He must speak slowly, give the audience time to understand and appreciate the weight of each idea as it comes along. Group the words so as to bring out the meaning most clearly; pause between these groups of words and think. Feel the idea as well as think it. If the speaker does not believe in what he is saying, he will never get the audience to believe in it.

After thinking and feeling the idea, the speaker makes an effort to adapt himself to the audience. He reaches out after them—projects the voice to them. He focuses his eyes on the listeners and gives them his idea as though he really wanted them to get it. If they are not listening, are not interested, it is because he is not sufficiently interesting. Every art of conversation should be used to reach them and to hold their attention and interest.

Next to a sense of communication, the most important quality of a speaker is life, vigor, physical vitality, and animation. Strong and positive tone of speech, forceful enunciation, strong position, and vigorous gestures count for much. Common conversation requires little muscular effort because the listener is close by and easily reached, but when the audience is large and many of them are seated at a distance, the problem is different.

Another necessary quality is enthusiasm. In practicing delivery, the speaker tries to generate the same enthusiasm as for the final speech. This will result in life in the gesture and in the spoken words. To the qualities physical vitality and enthusiasm, the effective speaker must add what at first glance may seem to be antagonistic qualities, namely poise and control. But poise and control do not mean that one must lessen his enthusiasm. It simply means that with all his force and enthusiasm, he must not fly off the handle; he must be master of himself; he must always keep himself in hand.

In addition to the foregoing, the speaker must always be genuine and earnest; he must believe what he says. A sense of humor is one of the greatest assets to the speaker, and is evidenced by his manner as well as by his words. A sense of humor is never inconsistent with seriousness; it is essentially a mark of mental balance, for it is in reality an appreciation of relative values.

To summarize, there are five fundamental qualities without which no speech can succeed, no matter how good it may be as far as voice, enunciation, position, and gesture are concerned. These are a lively sense of communication, physical vitality, enthusiasm, poise, and earnestness. With these qualities, a speech may succeed in spite of poor voice, poor gesture, and poor English. On the other hand, crudities of style, such as an awkward appearance, a rasping voice, speech so soft that it can't be heard, eccentricities of manner, etc., may completely offset the sense of communication, vitality, enthusiasm, and earnestness of the speaker.

**Note Taking by Students as an Aid to Memory.** Sell your men on the idea of building their notes into a sort of "handbook" which they will put into practical use in the field as a ready reference. Make sure therefore that they take their

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notes in some permanent form. The fact that they will be able to take back to their outfits a tangible proof of accomplishment will appeal to them.

Decide yourself (or with the help of others) what information a man in the field would be likely to find of value in such a handbook and then make sure you make it available to them. This will include such things as SNL and TM numbers.

Keep an eye on your men as they take notes. Discourage the inclination of some men to take down everything you say without regard to the relative importance of the things covered. Encourage them to set their own standards as to what they want in their books. In other words, let them know that they are preparing their notes not for you but for themselves. They should therefore be on the lookout for things not ordinarily found in the TM's but which they might find useful in the field. It might, for instance, be a good thing for them to know that in an emergency an old tooth paste tube makes good solder, if you don't have the real thing. Almost every class has a few of these "wrinkles" that the men should be encouraged to share with each other and with you.

Remember—and this is important—what you put on a blackboard they are almost certain to put in their notes. Therefore use the blackboard deliberately for this purpose. Be sure to put on it such things as the steps in assembly and disassembly; safety precautions; references and so forth.

Encourage your men to make their own sketches. This is an excellent way of impressing things on the mind because it is hard to forget a picture you have drawn yourself. Frequently such a sketch will be his only means of quick identification when the TM or SNL is not available. In addition this is a good way for a sleepy man to keep himself awake.

In almost every course there is a great deal of material which can best be given to the men in the form of mimeographed sheets. Frequently this will save you and your men a great deal of time. Complicated drawings and statistical tables lend themselves well to use such as this.

Occasionally spot check the notebooks of your men. This will keep them on their toes and at the same time give you some pictures of the extent to which you are putting your material across. A word of caution. In your anxiety to assist the men to take notes don't allow your classes to degenerate into a situation which was accurately described in the old gag which defines a lecture as "a method of instruction in which the notes of the instructor become the notes of the student without passing through the heads of either."

**Questions.** There are many purposes served by well placed questions in any lesson plan, but the most important point to keep in mind is that the questions must be good ones. Several of the points which should be included in good questions are: (a) They must be pertinent and on material covered in class or assignment; (b) They must be brief, concise, clear; (c) They must remain in the language of the student; and (d) They must be definite and call for a definite answer.

The purposes for which questions may be used are varied. They check on students' memory or thinking processes, on the effectiveness of instruction; they can be used for grading, to start discussion to emphasize important points, to provide an outline for review or study, and they can be used as a wake-up procedure, to stimulate competition, or to develop a habit of analyzing the steps of a specific job.

But not all questions will come from the instructor. Students will frequently ask questions and these can be divided into types. The most common is the informational question, one which seeks a specific bit of knowledge from the instructor, one which is bona fide. Another, also frequent, is the show off question designed to prove the instructor's ignorance of his subject. Still another is the heckler type question designed to disrupt the instructor without adding anything to the discussion; it is not necessarily insidious but results in the disruption of the program. The last type is the sort given by a student to help the instructor clarify an unclear point; it is the rarest of all four types.

**Written Check-Up.** Written questions can be classified into two main forms, essay and objective questions. The essay question consists of a broad question or statement followed by directions to "discuss" or "explain" the problem. Such a question forces the student to recall and logically express all that he knows about the question. Objective questions are characterized chiefly by two things:

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first, they require the student to do little or no writing, (he does not "express" himself at length); second, they enable the instructor to score answers quickly and confidently, since they largely eliminate errors of judgment in determining whether the answer is right or wrong. It is this feature of the objective question that gives it the name objective. Each type has its specific uses, and these should be clearly recognized and taken into consideration by the instructor when he constructs his tests.

Essay questions have several advantages and several disadvantages. They are easy to prepare; they reduce the tendency to guess; they bring out the ability of the student to express himself on the specific and related subjects. Some disadvantages are the same as advantages depending on the purpose of the test; for example, the fact that a student can wander to related subjects may in some cases be undesirable, hence a disadvantage. Other disadvantages lie in difficulty of grading, lack of uniformity in grading, length of time to answer and to grade, and the placing of undue emphasis on a student's ability to write. The subject covered in the question must, because of the above-mentioned factors, remain narrow in scope.

The main disadvantage of an objective examination is the difficulty encountered in choosing specific words in the questions in order that they be interpreted by the students in only one possible way. Advantages of this type question, however, are seen in the ease with which the test can be given by the instructor, taken by the student, graded after completion, and in the material covered. Types of objective questions which may be used are the recognition type: true-false, multiple choice, matching answers; and the recall: completion and single answer.

**Muzzling the Sharpshooter.** A sharpshooter or heckler in class presents a difficult problem. He must be silenced in order to permit instruction to proceed, and silenced early in the course. The one thing to be avoided is the silencing of a person asking a legitimate question by mistaking him for the "wise guy" type. An effective way to silence the heckler is to tell him to wait for his question until after the class or, if the question must be answered at the moment, ask him another which will answer his; the amount of time allotted for class must be watched carefully, however, to see that too much time is not lost over trivial points. In the case of a student who becomes unbearably obnoxious, he can often be silenced by offering him the privilege of teaching the class.

**Wake-up Procedures to Increase Class Interest.** During a continuous program of training, the interest of a class or group of students may drop even though the instructor's methods are good. To keep this from happening it is important to see that physical conditions do not interfere more than is absolutely necessary. For example, check on ventilation and temperature in the classrooms; try to arrange the training schedule so that a student does not attend class after working all night without sleep. If all outside conditions are satisfactory interest can be aroused by the injection of humor or some startling remark, or, as we have seen, by questions. Having the group stand for a moment or take a ten minute break will nearly always arouse the class from lethargy. Last of all vary the method of instruction or even let one of the students take over for a short time.

In the case of the individual student whose interest is constantly wandering, it is the instructor's responsibility to investigate, preferably out of class, as soon as the condition comes to his attention. He should question the student as to the reason, caution him, and if improvement is not shown, have him report to the senior instructor with recommendation for dismissal from the class.

## LEADERSHIP AND DISCIPLINE

You can't boss a brick. You can't even boss a dog unless the dog has been trained to obey and has formed habits of responding to commands; and before you can boss him you must know what commands he will respond to. The famous Seeing-Eye dogs can do wonderful things to aid the blind, but both dog and master must first go through a period of training.

Authority is not power. No amount of legal authority over the grizzly bears of British Columbia would enable you to get yourself obeyed by them out in the woods.

Men can be commanded only after they have acquired habits of obeying, and after their leader has learned to give them commands that make these habits

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work. All successful leadership thus depends on the habits of those who are to be led.

The officer standing before his men is limited in the direct exercise of his authority by what the troops are able to get through their eyes and ears. And what the men do, in response to what they see and hear the officer do and say, is just exactly what their previous training and their previous experience with him insure that they will do.

When authority is not obeyed, the fault may lie in the manner or speech of the leader or else it may be that the men are in need of basic training.

It is often said that a good leader knows how to handle his men. Actually however, it is not possible for any leader to handle men. It is himself that he handles. The men then react to his deportment; and the way in which they react depends, in turn, upon their habits of thought and action.

General Stewart's definition of leadership is "The successful commander should possess high moral and physical courage, should be just, upright and human, honest, frank, tactful; should have magnetism, health, robust physique, commanding prestige; should not be slovenly, boorish in manner or speech, should be generous, quick to recognize merit in others, self-controlled, self-confident, genuine, sincere, loyal to his seniors and subordinates; finally, should be able to think straight to the point and come to a decision."

In an army much of this training on which leadership depends is established by discipline. Discipline is training in the right habits of attention and obedience. Without such habits, we might have a crowd or a mob, but not an army.

It is quite possible to lead a mob, yet leadership is uncertain, depending largely upon accidents of personal appearance and on fortunate timing. In an army, however, there have to be many leaders of many ranks, and they have to be interchangeable. If a leader is killed, another must be ready to take his place and lead the men and the men who lose a leader must be ready to follow without question the commands of a stranger.

Training in discipline is training in giving attention and obedience to authority, regardless of individual personality. That is why armies are uniformed, why the insignia of rank are standardized. Also, it is why commands and the manner of giving them are fixed by regulations. Practice in discipline makes it second nature for the soldier to give attention to the insignia of rank and grade, and obedience to commands.

*Discipline.* Military discipline is that mental attitude and state of training which render obedience and proper conduct instinctive under all conditions. It is founded upon respect for and loyalty to properly constituted authority. While it is developed primarily by military drill, every feature of military life has its effect on military discipline. It is generally indicated in an individual or unit by smartness of appearance and action; by cleanliness and neatness of dress, equipment, or quarters; by respect for seniors, and by the prompt and cheerful execution by subordinates of both the letter and the spirit of the legal orders of their superiors.

*Obedience To Orders.* All persons in the military service are required to obey strictly and to execute promptly the lawful orders of their superiors.

*Military Authority, How Exercised.* Military authority will be exercised with promptness, firmness, kindness, and justice. Resort to trial by court-martial or to punishment under the one hundred and fourth Article of War will not be had for trivial offenses, except when less drastic methods of administering discipline have been tried in the case of the individual concerned, but without result. Such trivial offenses which have been corrected need not be noted on the offender's record, and will be considered as closed incidents.

*Military Courtesy.* Courtesy among military men is indispensable to discipline respect to superiors will be extended on all occasions.

*Relationship of Superiors Toward Subordinates.* Superiors are forbidden to injure those under their authority by tyrannical or capricious conduct or by abusive language. While maintaining discipline and the thorough and prompt performance of military duty, all officers, in dealing with enlisted men, will bear in mind the absolute necessity of so treating them so as to preserve their self-respect. A grave duty rests on all officers and particularly upon organizational commanders in this respect.

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Officers will impress upon the young enlisted men lessons of patriotism and loyalty, will instill or develop in them the concept of democracy as a form of government ideally suited for obedience to the American way of life, and will teach and impress upon them the necessity for obedience and military discipline in the service. These lessons will be repeated again and again. The differences between the status of the enlisted man and that of a civilian will be carefully explained.

The Articles of War will not only be read to the enlisted man but will be explained and their purpose laid before the man in such a way as to make him understand that in becoming an enlisted man he has subjected himself to a new control and has assumed obligations of service that did not rest upon him as a civilian.

Officers will keep in as close touch as possible with the men under their command, will take an interest in their organizational life, will hear their complaints, will endeavor on all occasions to remove the existence of those causes which make for dissatisfaction, and will strive to build up such relations of confidence and sympathy as will insure the free approach of their men to them for counsel and assistance, not only in military and organizational matters but in personal or family distress or perplexity. This relationship may be gained and maintained without relaxation of the bonds of discipline and with great benefit to the service as a whole.

In summary, discipline is indispensable to leadership. One cannot exist without the other. Together they are the support and framework of the Army.

*Reference:* "Leadership", published in the Infantry Journal, Feb. 1943 and AR 600-10, 25 Feb. 1943, Par. 1 and 3.

**Learning Obedience.** The first requisite of command is attention. What a soldier does not see or hear, he cannot obey. Attention means stopping all activity that interferes with looking and listening.

If this attention did not become second nature through long practice, an Army leader would, in an emergency, have to compete for attention by shouting or gesticulating. That would not do as he might not succeed.

So discipline is calculated to insure this preliminary attention by placing certain restrictions on behavior whenever an officer is present or enters the scene. If loud arguments or profanity or occupation with the soldier's own affairs were permitted to occur in the presence of an officer, then the soldier would learn to disregard the officer, and the officer would lose his ability to command attention and thus his ability to command at all.

If, on the other hand, the presence or arrival of an officer is always the signal to the soldier to come to attention, or, in combat, to pay attention, then no confusion of battle or distraction of pain or noise or close danger can cause a soldier to ignore his officer or his command.

What men do invariably and repeatedly is finally drilled into them. It becomes second nature. They learn to perform acts or maneuvers in response to command or order because the command or order has always been accompanied by the act and the act by the command.

Mere lecturing never trains men in action. At best it makes them learn mere word sequences, except when the listeners already know enough about the required action to perform it in imagination. Learning something new, in other words, requires participation. You don't learn to swim by taking a correspondence course.

Unfortunately, bad habits, as well as good, can be learned. If, on a spoken command, men do not respond, then they are learning not to respond. Whenever they are ordered to do something they cannot do, they are learning to disobey. Military manuals embody this fact in a rule: never give a command that you do not expect to be obeyed.

Thus, a young leader, when he finds himself so situated that his command might be disregarded, must refrain from giving it. He must try first to change the situation, to capture attention, or he must merely wait until he is reasonably certain that when he gives his order, it will indeed be obeyed.

Attention is the first requisite of command and practice is the second. The leader must see to it that his men get the right kind of practice. He must never

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give conflicting orders. He must give only directions that can be executed and then he must see to it that they *are* executed, or he loses his own power of command and discipline is broken down among his men.

**The Leader.** Through training in discipline the Army prepares its men to carry out its ultimate missions under command and according to plan. Leadership would be uncertain without this discipline.

But a good leader does not depend solely on the authority that discipline gives him as an officer or noncom, for good leadership goes far beyond discipline. A good, experienced leader inspires respect, confidence, and loyalty in his subordinates, all of which enable him to get from his men performance far above that which a new leader could command.

In this the leader can rely on the generous cooperation of his men, for men have a natural longing to respect and have affection for their leaders. They want to be proud of their officers and noncommissioned officers, just as they want to be proud of their unit and their branch of the service.

So soldiers look to an officer for that sort of bearing and behavior that leads to his being known as a "grand old man". They don't necessarily want him to be a model of *all* the virtues; they can forgive him for bursts of temper, for occasional arbitrary commands, for a rare show of weakness or even for tears over the loss of a friend. What they do demand in him is unfailing loyalty to duty and to his men.

When the new Army was first being formed, many of the officers had had little experience in command. They had learned the words necessary to give directions and instructions, but they had not learned the action or manner that go with command. A young officer would give an order, but his manner would betray his lack of confidence. This uncertainty was in effect a signal for not carrying the order out promptly and effectively as military orders must be carried out. All our lives we have depended on the manner and behavior of others, as well as on their speech, to know what was in their minds. Army discipline cannot change human nature. What a soldier does in response to a leader's command depends not only on the words spoken by the leader but also upon the way in which they are said. The leader's facial expression, his movements, his posture, and the firmness or quaver in his voice all have their effects; and these effects may completely nullify the effect of the spoken command. A leader is actually giving conflicting orders if his uncertain manner hints that he does not expect obedience or that he thinks he may not be obeyed. Although it is possible for the new leader who has lacked experience to imitate the manner and tone of wiser leaders around him, only practice in command develops the appropriate manner and tone.

A good officer or noncom ought to have many imitators of his effective style, yet not of his irrelevant mannerisms. It is hard to keep the two distinct. Every man, unfortunately, forms and keeps many useless habits in gesturing, grimacing, and manipulating. It is not these that should be imitated. but his habits of direct address, clear speech, military manner, confident air, enthusiastic interest, and friendliness mixed with reserve both in command and greeting.

Lack of a confident manner inevitably interferes with command. So also may a manner that betrays indecision by withholding or delaying action. The rule is that a leader should make up his mind and arrive at the decision before he gives orders. When he confronts his men, he must be ready to commit himself to this course or that. Men will accept assurance for competence, and they want competence in a leader.

A judge in a high court recently heard one of the trial lawyers say; "If the Court is in doubt . . ." The Judge rapped the bench and said; "This Court may be occasionally in error, but it is never in doubt." It is the business of a judge to decide cases. No matter how evenly the issue is balanced and no matter how much trouble and time is required for him to reach a decision, the decision, once given, must appear final.

The leader of men finds himself in the same position. On him depends the direction of men's action. That direction must never be ambiguous. Always it must be clearly indicated.

**What Soldiers Think of Leaders.** For the first time in the history of armies, the Army of the United States has undertaken to find out what its enlisted personnel think about a large number of things important to the Army.

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Some thousands of soldiers have been interviewed at length, and one of the subjects about which they were questioned is Army leadership. What the soldiers said makes it very clear that the quality of leadership in an army is the most important single determiner of morale and performance. The relationship between men and officers, commissioned and noncommissioned, determines the fighting spirit of an army quite as much as the ability of the soldiers to take training does.

In fact it turns out that these human relations are much more important to morale than beefsteak, warm socks, ball games, and vaudeville shows, or what the men believe about the war. These men mentioned 77 features of Army life as definitely associated with morale, and of the 20 most closely related to morale, 16 have to do with man-officer relations. What the men think of their leaders is, then, of the utmost importance to the Army and to the successful prosecution of the war.

Roughly, in the order of their association with good leadership in the minds of the enlisted men, are the following points:

(1) Ability;
(2) Interest in the welfare of the soldier;
(3) Promptness in making decisions;
(4) Good teacher or instructor;
(5) Judgment, common sense, and the ability to get things done;
(6) The good leader does not "boss you around when there is no good reason for it";
(7) The man who tells you when you have done a good job, rates well as a leader;
(8) Physical strength and good build;
(9) Good education, sense of humor, and guts follow in that order;
(10) Impartiality;
(11) Industry;
(12) Gives orders in such a way that the men know exactly what to do, and in a clear, strong voice.

The remaining qualities which the soldiers mentioned came toward the bottom of the list. They are undoubtedly related to good leadership, but they are less important. Not "hot tempered", do not "drive you too hard", "keep promises", "the kind of fellows you could have a good time with", "not too proud of their rank", are all characteristics which some men want in their leaders, but there is no general agreement about them. Many leaders are considered good in spite of failure on these points.

The chief things a man wants from a leader are, therefore, competence and interest in his welfare.

The orders of a man who does not know his stuff cannot be depended on. They are subject to change and countermand. An incompetent leader teaches caution and hesitation in following his lead. He becomes a signal for lack of action on the part of the soldier.

Indecision in a leader has the same effect on a soldier as ignorance has. No soldier can follow a leader who is uncertain which way to turn. The essential quality of any leader is to take the lead and show the direction quickly, clearly, emphatically, and with enthusiasm. Without these qualities a man is not even a good leader for his hunting dog.

**The Role of the Soldier.** Part of what makes a man a good soldier is his own adoption of the soldier's role. He comes to think and speak of himself as a soldier. He is progressing in military training when he stops thinking of himself as a plumber or a salesman who is now in the Army, and begins to regard himself as an Ordnance man.

What a man thinks of himself affects his behavior. The skilled worker who runs the machine that straightens railroad rails is one man when he thinks of himself with pride as a rail straightener but becomes another man when he begins, as he may, to regard himself as a mere "wage-slave" and lets crooked rails get by because he doesn't care. In the same way, the soldier who thinks proudly of himself as a soldier is doing a service to both himself and the Army.

Certain forms of punishment, public disgrace, or ridicule all disturb the role of the soldier and may lessen or destroy his usefulness to the Army and his ame-

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nability to leadership. The noncommissioned or commissioned officer who rides one of his men in such a manner as to make him doubt his own value as a soldier is shattering the man's best motive for good performance. The senior leader who reprimands a junior in the presence of his men reduces that junior's value to the Army.

Good leadership, on the other hand, causes men to build up, each for himself, a particular role or a specialty. It means a great deal to a man to take pride in being a soldier and in being a sharpshooter, an aviation mechanic, a truck driver, a cook, or radio operator. Competent leaders criticize a poor piece of work and condemn a mistake but take care never to make a soldier feel that he is a failure in his job. When a man has accepted his leader's statement that he is "no soldier," then indeed he falls back to perfunctory work and the mere effort to keep out of trouble.

When a soldier begins to regard himself as being a part of his unit and when his job has become part of his role, then teamwork is enormously improved. The soldier who thinks of himself as only a private, temporarily on this or that assignment, is a different man from the soldier who thinks of himself as a necessary member of his outfit. Good leadership always takes advantage of this essential of teamwork and common effort.

The leader's easiest and most important contribution to the personal recognition that the soldier needs is the use of the soldier's name in addressing him. When an officer is unable to call his men by name there can be no chance that a man's good performance will be noticed and remembered. It is one of the first duties of a company officer to make clear to his men that he knows each of them.

A leader need not always speak of specific good performances. It is often enough for him to make it clear that he saw the good performance. Continuous public commendation of one man put that man at a disadvantage with the others and have a bad effect on them. Public praise should be reserved for important and occasional performances.

**Complaints.** Soldiers are notorious gripers, and the griping may be useful not merely because it lets off steam but because it gives valuable information to the leader ready to profit by it. Only the smug or the incompetent leader dismisses complaints because they are common.

A collection of soldier comments on noncommissioned and commissioned leaders offers some food for reflection. Here is a selected batch of confidentially treated opinions expressed by a number of soldiers early in the War:

"This army can't be driven; it must be led."

"Break up on the old Army noncom clique and put advancement on a merit basis."

"Officers bluff too much."

"Let noncoms be chosen for what they know, not who they know."

"Our first lieutenant is dominated by the first sergeant."

"No reward for good work; old soldiers learn never to volunteer for anything."

"They treat us like children."

"When an officer tells his men he doesn't like the army any more than we do, he's not the one I look to."

". . . instead of changing his mind every few minutes . . ."

". . . should take a little interest in what we eat . . ."

". . . give us some idea of what's going on in maneuvers."

". . . hurry up and wait!"

"We come from just as good or better families . . . say a good word now and then . . . call a man by his name . . . show a man they know their stuff."

"After all, we're the ones who are going to fight and we want to be respected in uniform."

". . . don't tell what it's about."

". . . shames us in front of other batteries."

Such complaints cannot always be taken at their face value. The complaint that a soldier makes of his food, his officer, his quarters is often not concerned with the basic trouble that makes him complain. When he is depressed or annoyed, some complaint comes to the surface. The real trouble may be news from home, or a quarrel with a squadmate, or a slight from a leader that makes his future look insecure. Complaints may only be symptoms and may very often completely hide the real trouble.

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**Selection of Leaders.** No completely satisfactory system for selecting all leaders will ever be developed, for one man responds to one type of leader and another man to another type. The college leader might do quite badly if put in charge of the gas house gang. There are, moreover, different ways of leading the same group of men.

If the Army were to introduce a uniform system for the selection of leaders this system would have to be based on those few qualities of soldiers which are (because all the U. S. soldiers are Americans) widespread in the Army. There is no one person who embodies all the qualities for leading everybody.

Nevertheless, leaders must be chosen somehow; both commissioned and non-commissioned officers and the officer candidates. How is the job to be done?

No good tests exist for the measurement of leadership ability, except the General Classification Test. It has been found that a high score on this test indicates that the man will be likely to succeed as an officer candidate in the Quartermaster and Adjutant General's Schools. A score below 110 indicates, morever, that the man lacks the general ability to make good officer material in any school. There may be exceptions, but this is a safe rule.

In most of the arms and services, however, many other qualities besides this general mental ability are necessary for good leadership. These capacities cannot as yet be measured by any test; the only way of finding out about them is by observation and interview. Selection has to be made by the personal judgment of a superior officer or by a selection board. There are, however, ways of safeguarding the fairness and of improving the accuracy of such personal judgments.

In the first place, good judgments require competent judges. Rank is no guarantee of ability to judge leadership in others. Nor are good leaders necessarily competent to assess good leadership in others. The test of a competent judge is his successful predictions in the past.

The second requirement is that there should be a number of judges, not one. This is a case where a jury is needed. A jury of five is likely to average out the personal biases and hunches of each of its members and to come near the truth—provided the five are competent. Wisdom is, of course, something more than the average of five incompetent opinions.

The third requirement is that the decisions of the judges should be based upon the actual performances of the candidate in practice and not upon what he does or says in an interview or his bearing on that occasion. If the judges have to rely upon interviews without direct observation of performance, then they should try to bring out in the interview concrete information about the candidate's past achievements.

The interview itself is not a fair or accurate test of a soldier. The man who would make a good leader may be a modest man who fails in an interview to exhibit those qualities that would make his men believe in him, trust him, and admire him. The man who could never secure the loyalty of subordinates may, nevertheless, by assurance, poise, voice, and manner mislead inexperienced judges as to his capacity.

It is easy for us to say what will not work in predicting leadership. The tests have been tried and have thus far failed.

Making out a list of leadership qualities, rating the candidate on them, and weighing and averaging them is an impressive procedure. The trouble is that it does not work—at any rate not now. There are too many different ways of being a good leader, and of securing loyalty. No one can yet name the traits upon which success depends, except that a good leader is a good leader and can develop further with time and opportunity. In other words, the only proof of leadership is leadership, and the best thing to do is to give it a chance to emerge and then to have competent men judge whether it has appeared.

For similar reasons no single successful set of questions has ever been devised to assess leadership in an interview. The competent judge adapts his questioning to the individual candidate knowing when to discard one answer and when to give another much weight.

This much, however, is known. Although young men can make excellent leaders, leadership developes with experience. Higher standards should, therefore, be set

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for older men. The man of thirty, who is only just as good as the man of twenty-two, is not going to improve as rapidly as his younger competitor. It has taken the older man longer to get where he is and it will take him longer to make the next advance.

There is one source of information about leadership which the Army has too often overlooked. It is possible to get the judgments of subordinates who do not grudge honest appreciation to a superior. If the leader has the loyalty of his men, they will want to express it. The use of estimates by subordinates is generally supposed not to be conducive to good discipline, but that objection lacks force when the manner of getting the estimates is the proper one.

It is known, moreover, that the men of a platoon can size each other up effectively and can pick the men who deserve advancement more consistently than the leaders can. The men know competence when they see it.

It therefore appears that the officer who fails to find out quietly the opinions of his subordinates when he is selecting a man for promotion is overlooking a valid source of information—one that is, in the long run, far more accurate than his own judgment. For this reason a good leader always has an advantage in picking potential leaders because the good leader has the loyalty and confidence of his men. He can get their judgments of one another without jeopardizing discipline.

**Leadership Can Be Learned.** There are no born leaders. All leadership is based on learning how to deal with men. Nearly all leaders improve after they have had experience in command. Some improve faster than others, and some continue to improve while others do not.

Consider the qualities which enlisted men believe important in leaders. The first are competence and ability. Competence is based on learning. The good leader has learned his job thoroughly and his men can trust him to know what he is doing. He knows not only what he learned in his training courses, but he has kept up to date. If he is an artilleryman, he knows how the Germans use artillery and what guns they have. The rule is a simple one: know your stuff.

Second to competence is the officer's interest in the soldier as a man. This is a demonstrated interest which gives the soldier confidence that when he stands hardship it is a necessary part of the job, and his troubles give his officer concern. Every man can by practice improve his skill in human understanding and increase his repertoire of actions that demonstrate interest in others. Know your men and show it. Know their names, their history, their weaknesses, their good points, and their morale. Begin by studying their qualification cards.

Decisiveness is a hard skill to acquire, but it can, with attention be cultivated. When you have a hard choice, remember you do not usually have to make a snap judgment. Careful consideration and weighing of the merits of alternate courses is not indecision. Your men will respect your judgment even more if you reserve decision until you are in possession of all the facts necessary for a wise choice. Do not set up a 'council of war' to pass on things by vote; *you* are the leader. Seek advice when you need it and do not hesitate to call on your subordinates for counsel if they are qualified to give it. Choose your course before you give your orders.

Probably only experience (together with genuine interest in other men) makes a good teacher, but there are many rules for good *teaching* that may help. One of these rules is: Remember that men learn to do by doing. Lectures are only the embroidery on training. It is actual performance that does the work.

Another suggestion to the leader is: Remember that when the men do not understand you, it is your fault. You must talk their language—plain language. If you cannot express yourself clearly, it may be because you do not understand the subject well yourself. Think things through carefully before you try to explain.

A leader then, to be worthwhile in the eyes of his men, would do well to observe the following "ten commandments."

1. Be competent.
2. Be loyal to your men, understand them, love them, and be proud of them.
3. Be loyal to your country and the Army.
4. Accept responsibility and give clear, decisive orders.

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5. Teach your men by putting them through the necessary action.
6. Give only necessary orders.
7. Get things done.
8. Be fair.
9. Work hard.
10. Remember that a leader is a symbol. Men need to respect and trust you so don't let them down.

## MOBILIZATION TRAINING PROGRAMS

MTP's like T/O's are a guide, not law, and consequently are accompanied quite frequently by extensive improvization. They form an outline to assist those responsible for training newly activated companies plus an outline for training individuals, sections, and units, with definite times allotted for each subject. They are divided into four groups: basic military, basic technical, basic unit, and advanced unit training.

Each subject is covered by a brief statement of the object for training in the subject, total number of hours to be spent, and the distribution of hours for each subject by weeks throughout the specified training period. The MTP will also include text references and may or may not include the time in hours given to each topic under a given subject. What and when to teach is often left to the discretion of the instructor.

Although the master schedule with subject and total hours is included in the MTP, several factors may alter or influence the plan. Higher headquarters can call for a revision to meet activation orders, special mission requirements, particular terrain or climatic features, or the availability of facilities and equipment.

The subject schedule is prepared by the company commander several days in advance of its proposed use and he determines the number of men for each course. He must analyze the subject for material to be taught, the order of teaching, the time allotted for each, and decide how the instruction is to be given. It is the company commander who must supply training notes, equipment, place, uniform, and other allied material; and he must naturally designate the instructor and subject to be taught.

There are several points which if kept in mind will facilitate instruction: calisthenics and precision drills should be held early in the day and be scheduled for short periods only. Morning periods are best suited for subjects requiring mental effort. Alternate different types of subjects throughout the day in order to avoid undue fatigue, to provide variety and to sustain interest. Subjects requiring preparation of facilities and equipment should be scheduled for long periods. Apply principles with common sense and logic, and prepare alternate schedules for inclement weather. It must be remembered that all preparations should be made far enough in advance to allow organization of all administrative details, safety precautions, and preparation of the instructor to teach his subject.

In the case of any training one of the most important things to remember is to keep detailed records of the training progress of each individual in all phases and at all times. Information may be kept on a progress chart or by any other means clear enough to be self explanatory to an outsider. This information should be kept by the company commander as well as by each unit leader or instructor.

Inspections will frequently be made by disinterested parties, as, for example, the Military Training Department, Army and Corps Headquarters, or command. Inspections will be made to determine whether or not training is being satisfactorily carried out, if all material is covered, if all equipment is used to the maximum of proficiency, and, in the last stages before overseas movement, to determine the fitness of all personnel for foreign duty. It is in the final showdown inspection that the quality of training will show itself.

The purpose of the advanced technical training phase of a mobilization training program is the development of personal skills provided for the T/O and E of an organization. It has been considered most advantageous to accomplish the bulk of this training through service schools, where training can be centralized, facilities and training equipment most economically used, and where trainer personnel through specialization can become expert in both knowledge of the subject taught and in training procedures and practices.

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A catalogue of the courses available at Ordnance training establishments for officers and enlisted personnel, is of interest to ordnance officers because it shows what training is currently available to members of the organization and its indicates a proven method of training specialization when time is short and need is great. For a more complete reference see Army Service Forces Manual M3, which outlines the mission, scope and prerequisites for each course. During years when training is less critical, it may be expected that courses will be less numerous, broader in scope, and of considerably longer duration.

Officer students are primarily drawn fom Army Gound Force, Army Air Force, and Army Service Force units, Chief of Ordnance personnel, and the Ordnance Officers Replacement Pool. Enlisted personnel come from Army Ground Forces, Army Air Force, Army Service Forces, and from Ordnance Department Unassigned sources. Quotas are also available to station complement personnel and other troops. Requests for officer and enlisted student quotas should be made through command channels to Operations Division, Military Training Service, Office Chief of Ordnance, Washington, D. C. Officer candidate school quotas are announced by The Adjutant General.

The following are the Ordnance technical courses of instruction, as outlined in MTP 9-1, conducted at Army Service Forces training centers.

Artillery mechanic, antiaircraft (915, 978)
Artillery mechanic, heavy (914)
Artillery mechanic, light (913)
Automotive mechanic, track vehicle (966)
Automotive mechanic, wheeled vehicles (965)
Blacksmith (024)
Carpenter-painter (050, 144)
Clerk typist (405)
Munitions worker (901)
Clerk, ordnance general supply (835)
Cook (060)
Instrument repairman (922)
Leather and canvas worker (609)
Machinist (114)
Motor vehicle operator (345, 932)
Small arms weapons mechanic (903)
Welder (256)
Ammunition renovator (949)
Bomb disposal technician (924)
Tire rebuilder (240)

For the purpose, of illustration and as a guide to the requirements, the following list of officers and enlisted men's courses is offered to acquaint the reader with the contents and scope of advanced technical training courses at the Ordnance School, APG.

## Officer Courses

**Course No.** **Title** **Time**

**OO-1 Ammunition Field Supply** 8 weeks

**Scope**—The first half includes the technical details, designs, and functions of all types of standard ammunition used by the AGF and AAF. The second half pertains to administrative details of ammunition supply in the field under varying types of operating conditions.

**OO-33 Ammunition Inspection and Renovation** 6 weeks

**Scope**—Safety, storage, handling, inspection, and renovation of small arms, artillery, and other type ammunition; field renovation; familiarization with foreign ammunition and disposal of unserviceable ammunition.

**OO-35 Ammunition Surveillance** 6 weeks

**Scope**—Trains officers for assignment to base and zone of interior depots for ammunition surveillance and renovation duties and prepares officers for applicatory training in ammunition inspection and renovation.

**OO-28 Heavy Antiaircraft Fire Control System Maintenance** 6 weeks

**Scope**—Remote control systems, cable systems, fuze setters, and power rammers, employed on heavy antiaircraft artillery.

**OO-29 Electrical Directors M9 and M10 Maintenance** 6 weeks

**Scope**—Principles of operation of main computing and correction circuit, electronic and power units; set up and operation of Director M9A2; disassembly and assembly; electrical adjustments; test sets, and trouble shooting.

**OO-30 Heavy AA Mechanical Directors and Optical Height Finder Maintenance** 6 weeks

**Scope**—Disassembly and assembly; set up; adjustment, checks and miscellaneous adjustments

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and trouble shooting on Directors M4, M7, M7A1B1 and M7A1B2; operation, disassembly and assembly of Height Finders M1 and M2 and Telescopes M7 and M13.

OO-3 **Light AA Fire Control Maintenance** 5 weeks
**Scope**—Principles of operation, inspection, repair and maintenance of Directors M5A1 and M6, Remote Control Systems M1, M3, M9 and M10, Cable Systems M8 and M9.

OO-10 **Instrument Repair (nonelectrical)** 4 weeks
**Scope**—General fire control instruments and sighting equipment, exclusive of that peculiar to AA systems and watch repair.

OO-24 **AA Artillery Maintenance** 6 weeks
**Scope**—Inspection, adjustment, repair and preventive maintenance of components of representative multiple machine gun mounts and of 37mm, 40mm, 90mm and 120mm AA guns and carriages.

OO-23 **Ground Artillery Maintenance** 4 weeks
**Scope**—Inspection, adjustment, repair and maintenance of ground weapons up to and including the 155mm guns.

OO-6 **Aviation Ordnance** 6 weeks
**Scope**—Principles of maintenance of wheel vehicles, aircraft machine guns and cannon and hand and shoulder weapons; pyrotechnic projectors; identification, construction and functioning of bombs and fuzes; aircraft cannon, antiaircraft and small arms ammunition; ammunition and ordnance general supply procedures and the staff functions of an aviation ordnance officer.

OO-9 **Small Arms Maintenance** 4 weeks
**Scope**—Disassembly, assembly, nomenclature of parts, operation, inspection, preventive maintenance and test firing of hand and shoulder weapons and ground and AA machine gun and mounts.

OO-11 **Basic Military** 4 weeks
**Scope**—Basic general military, administrative, supply and training subjects.

OO-19 **Ordnance General** 4 weeks
**Scope**—Ammunition and general supply procedures; maintenance principles; general principles of operation, construction, and familiarization with automotive, artillery, small arms and fire control materiel, ammunition and the operation of a service section.

OO-20 **Ordnance Staff Officers** 8 weeks
**Scope**—Duties of staffs, tactics and techniques of all arms and services with emphasis on their relationship to ordnance units, operations under specialized circumstances, ordnance service and organizations, technical requirements of ordnance officers and all phases of ordnance general supply, ammunition supply and knowledge of technical ammunition.

OO-21 **Ordnance General Supply** 4 weeks
**Scope**—Ordnance general supply principles and practice in company and general supply procedures; ordnance general supply organizations in theaters of operations; practice in field depot and base depot operations under simulated field conditions.

OO-5 **Ordnance Automotive Maintenance** 8 weeks
**Scope**—Principles of construction and operation of wheel and track vehicles and their component parts; practice in disassembly, inspection, reconditioning, assembly and adjustment of automotive materiel and principles of administration for field automotive shops.

OO-25 **Organizational Automotive Maintenance** 4 weeks
**Scope**—Elements of organizational motor vehicle maintenance including preventive, field, and shop maintenance and inspection; standard shop principles and methods as applied specifically to motor vehicle operation and maintenance.

OO-17 **Automotive Preventive Maintenance** 1 week
**Scope**—Intensive study of the various aspects of an adequate maintenance program within a division or small organization. Familiarization with the construction and functions of automotive units and armament; army lubrication program; driver selection and training; organization of motor pools; command and technical inspection of materiel.

OO-18 **Tire Rebuilder** 8 weeks
**Scope**—Inspection and classification of reparable tires and tubes, vulcanizing, spot and sectional repair, recapping, storage and issue of tires and tubes.

OO-26 **Evacuation and Recovery** 4 weeks
**Scope**—Familiarization with friendly and enemy materiel; operation of maintenance organizations in combat zone; evacuation, recovery, decontamination and destruction of materiel; and operation and maintenance of recovery vehicles.

OO-13 **Bomb Disposal** 7 weeks
**Scope**—Methods of disposal of enemy bombs and similar objects. Officers successfully completing the course are qualified to conduct disposal operations and to train civilian and military personnel.

OO-14 **Bomb Reconnaissance** 1 week
**Scope**—Diagnosis of bomb incidents and determination of presence of unexploded bomb, AA shell, camouflet or crater due to an explosion; methods of teaching bomb reconnaissance to military and civilian personnel.

OO-31 **Applied Leadership** 6 weeks
**Scope**—Intensive physical conditioning, infantry drill with emphasis upon command techniques, marksmanship, minor tactics, orientation on ordnance materiel and military administration.

### OFFICER CANDIDATE COURSE

OOC-1 **Ordnance Officer Candidate Course No. 1** 17 weeks
**Scope**—Basic general subjects, minor tactics, supply, and administrative procedures, marksmanship and weapons technique, general familiarization with ordnance materiel and maintenance procedure. All subjects are presented in such a manner as to qualify the successful graduate to train military personnel. Military exercises including infantry drill, marches, bivouacs and minor tactics offer the candidate an opportunity to display leadership and other qualities required of an officer.

### ENLISTED COURSES

OE-13 **Munitions Worker Ground (901)** 8 weeks
**Scope**—Theory of military explosives, ammunition components and complete rounds. Emphasis

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is given to small arms and artillery ammunition and their components used by the AGF; handling, storage, transportation, safety measures, identification, maintenance, surveillance and camouflage are stressed in field problems.

**OE-14 Ground Ammunition—NCO (505)** 8 weeks
**Scope**—Technical details, designs and functions of all standard types of ammunition; administrative details of ammunition supply to field units.

**OE-117 Field Ammunition Inspector and Renovator (949)** 4 weeks
**Scope**—Inspection and renovation of artillery, small arms, and miscellaneous ammunition; safety, storage and handling of ammunition.

**OE-17 Light Artillery Mechanic (913)** 9 weeks
**Scope**—Pertinent publications, use of hand tools, rigging and mechanical maneuvering, inspection, diagnosis of malfunctioning, disassembly, assembly, and field maintenance of infantry mortars and artillery materiel up to and including 155mm Howitzers.

**OE-112 Light AA Artillery Mechanic (915)** 7 weeks
**Scope**—Pertinent publications, use of hand tools, rigging and mechanical maneuvering, disassembly, inspection, diagnosis of malfunctioning and field maintenance of 37mm and 40mm AA guns and carriages and multiple machine gun mounts.

**OE-113 Heavy AA Artillery Mechanic (915)** 7weeks
**Scope**—Pertinent publications, use of hand tools, rigging and mechanical maneuvering, disassembly, inspection, diagnosis of malfunctions and field maintenance of 3-inch, 90mm and 120mm AA guns and mounts.

**OE-19 Heavy Artillery Mechanic (914)** 8 weeks
**Scope**—Pertinent publications, use of hand tools, rigging and mechanical maneuvering, disassembly, assembly, inspection, diagnosis of malfunctions, repairs and field maintenance of 155mm guns, and larger artillery pieces.

**OE-54 Vehicle Turret Mechanic (907)** 10 weeks
**Scope**—Principles of operation, nomenclature, servicing and maintenance, unit replacement and so far as feasible overhaul of turret control devices, auxiliary power units and gyroscopic gun stabilizing units of light and medium tanks; inspection and unit replacement of vehicle mounted machine guns and fire control instruments and unit replacement and adjustment of tank and artillery motor carriage mounted weapons.

**OE-48 Track and Wheel Vehicle Electrician (912)** 8 weeks
**Scope**—Test, repair, rebuild and adjustment of electrical units of track and wheel vehicles, including starting, ignition, and charging systems and all accessories such as lights, horns, ammeters, fuel gages.

**OE-49 Fuel Induction Mechanic (926)** 6 weeks
**Scope**—Test, repair and adjustment of Carter, Stromberg and Zenith Carburetors, vacuum pumps, air cleaners, fuel lines, governors, Diesel fuel pumps and injectors, injector nozzles, Diesel unit injectors, Bosch fuel pumps and governor devices.

**OE-70 Wheel Vehicle Automotive Mechanic (965)** 12 weeks
**Scope**—Instruction is divided into 3 four-week phases. Successful completion of the preceding phase is a prerequisite to the next phase.
(1) Phase I—Fundamentals of Automotive Maintenance, includes care and use of hand tools, principles of operation and construction of vehicle units, driver maintenance and recovery.
(2) Phase II—Trouble Diagnosis and Motor Repair Operations, covers second echelon automotive maintenance procedures.
(3) Phase III—Unit Replacement and Adjustment Operations, covers replacement and adjustment of major components of general purpose and half-track vehicles.

**OE-71 Special Diesel Mechanics (013)** 4 weeks
**Scope**—Principles of operation of Diesel engines, servicing and maintenance of engine and all necessary units including fuel pumps, high and low pressure injection systems, air cleaners, fuel filters, ignition system of semi Diesel engines, and starting equipment.

**OE-72 Carburetion and Electrical Units Specialist (414)** 4 weeks
**Scope**—Fundamentals of electricity; automotive fuels; maintenance, test, repair of starting motors, generators, magnetos, fuel pumps; governors; superchargers and carburetors.

**OE-73 Wheel Vehicle Inspector (413)** 9 weeks
**Scope**—Technical inspection of all types of automotive vehicles and unit assemblies, diagnosis of malfunctions, shop and motor pool organization and foremanship.

**OE-74 Motorcycle Mechanic (138)** 12 weeks
**Scope**—Operation and preventive maintenance, unit removal, adjustment, and replacement; complete overhaul of engine, chassis, power train, fuel and electrical systems of various types of motorcycles used in the military service.

**OE-79 Tire Rebuilder (240)** 8 weeks
**Scope**—Inspection of tires; classification, maintenance and repair of all makes and types of pneumatic tires and tubes including vulcanizing and rebuilding sections, putting on patches, and attaching inlets and valves.

**OE-82 Tractor Mechanic (Engineers) (319)** 10 weeks
**Scope**—Nomenclature, operation, preventive maintenance, and unit replacement on light, medium and heavy tractors.

**OE-51 Wheel Vehicle Engine Mechanic (905)** 6 weeks
**Scope**—Inline engine rebuild, practice on engines for scout cars, bomb service trucks, half tracks, shop trucks, tractors, general purpose vehicles.

**OE-52 Wheel Vehicle Chassis Mechanic (906)** 8 weeks
**Scope**—Functioning, adjustment, and rebuild of all types of brakes, transmissions, transfer cases, rear and front ends, steering gears, shock absorbers and spring shackles and front end alignment.

**OE-55 Track Vehicle Chassis Mechanic (908)** 8 weeks
**Scope**—Functioning, nomenclature, lubrication, adjustment, disassembly, overhaul and assembly of suspension and power transmission systems and differential and transfer units.

**OE-56 Track Vehicle Engine Mechanic (909)** 8 weeks
**Scope**—Principles of operation, nomenclature, lubrication, cooling, ignition, unit replacement, disassembly, inspection, repair, assembly, and test of gasoline and Diesel vehicle engines.

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**OE-26 Military Administrative Clerk (055)—(405)** 8 weeks
**Scope**—Typing, sources of information, organization of Army, company and personnel problems and reports, Company Fund, and Company Supply Sergeant administration.

**OE-27 Supply Clerk (835) (821)** 8 weeks
**Scope**—Procurement, receipt, accounting, storage, safe keeping, shipment and issue of property, including ammunition and ammunition supply; supply operations in theaters of operations and ordnance company shop property administration.

**OE-108 Ordnance Armament Parts Clerk (848)** 12 weeks
**Scope**—Identification, checking, receiving, shipping, accounting, packing and crating of small arms and artillery parts and the use of master parts catalog and SNLs.

**OE-109 Ordnance Automotive Parts Clerk (348)** 12 weeks
**Scope**—Use of shop manuals and parts lists, nomenclature and identification of parts for combat, special purpose and general purpose vehicles; interchangeability, common parts list and SNLs; requisitioning and field procurement, receipt, storage, classification, segregation and issue of automotive parts in warehouses.

**OE-4 Instrument Repairman Fire Control (Nonelectrical) (922)** 10 weeks
**Scope**—Elementary optics, use of basic reference material, description, disassembly, assembly, testing, adjustment, general maintenance, inspection and malfunctioning of all basic types of nonelectrical fire control instruments and sighting equipment.

**OE-30 Heavy AA Mechanical Director Repairman (917)** 6 weeks
**Scope**—Principles of operation, disassembly, assembly, test, adjustment, general maintenance and inspection of Director M4, M7, M7A1B1, M7A1B2.

**OE-95 Light AA Fire Control Equipment Repairman (918)** 7 weeks
**Scope**—Principles of operation, description, functioning, disassembly, assembly, tests, adjustments, general maintenance, inspection and malfunction of Directors M5 and M6 Remote Control Systems M1, M3, and M5, and Cable Systems M8 and M9.

**OE-2 Heavy AA Electrical Director Repairman (899)** 10 weeks
**Scope**—Assembly, disassembly; principles of operation and control; maintenance and adjustment; and care and operation of the unit in the field.

**OO-32 Heavy AA Remote Control Systems Repairman (919)** 12 weeks
**Scope**—Principles of operation, disassembly, inspection, repair, assembly, tests and adjustments in trouble shooting with heavy AA control materiel.

**OE-35 Height Finder Repairman (921)** 6 weeks
**Scope**—History or development of stereoscopic range and height finders; principles of operation, disassembly, assembly, field and shop tests, adjustments, general maintenance, inspection and trouble shooting of Height Finders M1 and M2.

**OE-110 Watch Repairman (381)** 12 weeks
**Scope**—Care and use of tools, disassembly, removal and replacement of movements or parts, adjustment and assembly and practical repair work on all makes of pocket, wrist and stop watches and tank and message center clocks issued by the Ordnance Department.

**OE-96 Generator and Cable Repairman (506)** 5 weeks
**Scope**—Standard 1st and 2nd echelon service requirements, adjustment of oil pump pressure, cleaning of filters and cooling systems, conditioning of the commutators on the starting motor, generator and exciter unit; replacement of generator accessories; motor repair of generators; starting motors and alternators, mobile replacements, splicing, vulcanizing and plug and receptacle repair.

**OE-101 Combination Welder (256)** 8 weeks
**Scope**—Use and care of oxyacetylene and electric arc welding equipment; common welds in ferrous, nonferrous and alloy metals, welding cast iron with cast rod and cylinder block welding, use of metallizing equipment.

**OE-43 Armor Plate Welder (923)** 4 weeks
**Scope**—Theory and practice of oxyacetylene cutting and oxacetylene and electric arc welding of homogeneous face hardened armor plate in all positions and in all joint types.

**OE-100 Machinist (114)** 12 weeks
**Scope**—Blueprint reading, shop mathematics, use of hand and bench tools, gages and precision instruments; use, care, and maintenance of power tools, including lathe, bench grinder, drill press, milling machine, shaper and shop truck equipment; machining operations peculiar to automotive engine rebuilding such as cylinder boring, crankshaft grinding, main bearing, line boring and brake drum grinding.

**OE-103 Blacksmith (024)** 4 weeks
**Scope**—Operation of hand forge equipment, annealing, heat treating, oil and water tempering, case hardening of iron and steel and forging common objects such as bolts, hooks, chains, or eyes.

**OE-104 Light Metal Worker (201) (172)** 8 weeks
**Scope**—Care and use of necessary hand and power tools used to prepare light sheet metal for painting; repair of fenders, hoods, doors and cabs including soldering and proofing, replacement of glass and safety glass; removal, cleaning, and repair of gasoline tanks, radiators and radiator grilles.

**OE-105 Rigger and Wrecker Operator (189) (529)** 8 weeks
**Scope**—Field rigging, operation, care and 1st and 2nd echelon maintenance of wrecker and recovery units, advanced map reading, vehicle camouflage and concealment, motor marches and convoys employing towing hook ups, practical application on wrecker and recovery units in recovery of disabled vehicles.

**OE-106 Carpenter and Painter (050)—(144)** 8 weeks
**Scope**—Use of carpenter tools, shop mathematics, simple working drawings, estimation of materiel requirements, elementary rigging, packing, crating and blocking of materiel for shipment, rebuilding and assembling wooden truck bodies, preparation of wooden and metal surfaces for painting by brush and spray method, elemenetary sign painting and use of stencils.

**OE-107 Leather and Canvas Worker (609)** 4 weeks
**Scope**—Use of tools for leather and canvas working, operation and maintenance of sewing machines, construction and repair of vehicle tops, seats, cushions, curtains, pads, carpets, mats, straps, celluloid windows, and fasteners.

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**OE-3 Small Arms Weapons Mechanic (903)—(511)** 8 weeks
**Scope**—Basic principles underlying all small arms weapons, use of pertinent publications, use of tools for special maintenance and inspection of weapons, shop procedures and repair and function firing of hand and shoulder weapons, ground machine guns and mounts.

**OE-1 Bomb Disposal NCO—924** 4 weeks
**Scope**—All phases of bomb disposal work except actually rendering the bomb safe.

**Ordnance Parts Clerks (348)—(848)** 12 weeks
**Scope**—Use of publications in parts identification; methods and practice in identification of high mortality parts from armament and automotive materiel, machine tools, and standard hardware; principles of receipt, storage and issue of parts.

A detailed breakdown of a heavy artillery mechanic 8 weeks course. As set up in MTP 9-1 and recommended for organization training.

ARTILLERY MECHANIC, HEAVY (914)

| Subject | Total hours | Weeks | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| (1) Introduction to hand tools | 2 | 2 | | | | | | | |
| (2) Simple blue print reading | 5 | 5 | | | | | | | |
| (3) Measuring instruments | 2 | 2 | | | | | | | |
| (4) Group lessons on lay-out, files, taps, dies, hacksaws, drills, screwdrivers, hammers, wrenches, pliers, punches, and drifts; tool application; grinding wheel application | 9 | 9 | | | | | | | |
| (5) Shop projects | 18 | 18 | | | | | | | |
| (6) Artillery general | 6 | | 6 | | | | | | |
| (7) Shop administration | 6 | | 6 | | | | | | |
| (8) Lubrication and preservation | 12 | | 12 | | | | | | |
| (9) Rigging | 24 | | 12 | 12 | | | | | |
| (10) Gun 4.5 in. M1, carriage M1A1 | 56 | | | 24 | 12 | | | | |
| (11) Gun 155mm M1A1, carriage M1 | 48 | | | | 24 | 24 | | | |
| (12) Gun 155mm M1918 M1 carriage M3 | 12 | | | | | 12 | | | |
| (13) Howitzer 240mm M1, carriage M1 | 108 | | | | | | 36 | 36 | 36 |
| Total | 288 | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 |

## MORALE AND ORIENTATION

Everyone realizes that no military unit can be an efficient one unless its members are thoroughly familiar with their weapons, whether these weapons be machine guns, pencils, or wrenches. However, there is another side to military training which is composed of intangible factors that are vitally necessary to military efficiency. Some of these factors are morale, orientation, discipline, and leadership. As we discuss each of these, keep in mind the fact that they are closely related and interdependent—if one is lacking, the other three will be seriously weakened.

### MORALE

How important is morale? Napoleon said that in warfare morale is to materiel as three is to one. General George C. Marshall, U. S. Chief of Staff, said that he thought the correct proportion is nearer five to one. When great military leaders like these make such statements, no officer or noncommissioned officer can afford to overlook the importance of morale as a combat weapon.

What is morale? We all know that it is a state of mind. Here is an episode which may give you a somewhat better idea of the important part played by this state of mind.

Up in the Yukon River Basin, in the interior of Alaska, the temperature often drops to 50° below zero in winter. For many years along the Yukon, trappers and Indians and Canadian Mounties will tell the story of the American Army Engineer regiment which bucked out 120 miles of road in Arctic winter weather. The regiment was bogged down with cold and loneliness when a bright young officer organized a moose hunt. The hunt lasted a whole day. Two big bulls were shot. It was the first fresh meat in camp in weeks. No more canned chow for a while! The moose steaks sizzled briskly in the frying pans, girdled with hash-browns. The next morning the regiment commenced its big push to complete the Alaska Highway. It moved on through and did the job.

This regiment had sufficient personnel and the necessary equipment, but it lacked the will to accomplish a tough job. When its morale was raised, the will

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was there; the proper state of mind had been attained. However, not every unit can have a moose hunt, nor, very often, will one such incident solve the morale problem; therefore it is necessary to tackle this problem with systematic and continuous effort.

**The Factors of Morale.** The efficient soldier is the end product of all training. He is the desirable result of all the hours of drill, class and field training from the moment of induction into the service to the hour of battle. At that critical time what he performs will be in exact proportion to what he has been taught to perform. It will be the sum total of his technical training plus his mental conditioning.

Much time and study is devoted to the first of these factors—to technical training. Studies are made of the needs of the soldier, equipment is devised to fill these needs, methods are developed to instruct in the use of this equipment, and tests and problems are conducted to insure that the needs are adequately filled.

But—though it is at least equally important—much less is done to insure that the soldier is mentally trained. Morale is felt to be intangible and hence is neglected. There are no texts on morale which are more than mere exhortations. There is no simple and easy guide to the subject.

It has been found that the efficient soldier is a product of his technical training, army experience, and equipment on the one hand, and of his mental conditioning on the other.

It has been discovered that efficient soldiers were characterized by four general attitudes which together amounted to high morale.

*Zeal.* An extra spirit given to a man's duties.

*Discipline.* Cheerful and understanding subordination to the good of the team.

*Self-confidence.* A reasoned belief in personal adequacy.

*Satisfaction.* An absence of unhealthy discontent.

The four general attitudes so far discussed cannot be influenced by direct attack. No good results from telling a soldier to be more zealous or to have more self-confidence. These general attitudes are either based on more specific and concrete attitudes, which can be directly influenced, or they are based on practical conditions, which can perhaps be changed. The Research Branch of I & E Div. found that they were based primarily on several specific attitudes:

Belief in the army's concern for the welfare of the individual;
Satisfaction with job assignment;
Realistic appraisal of the task ahead;
Teamwork, pride, and confidence in the outfit;
Confidence in training and equipment;
Belief in the importance of the mission;
Faith in the cause and the future.

These, then, are the factors of morale, four general and seven specific attitudes. The problem which remains is how they may be fostered. Let us now study this problem by looking at the specific attitudes.

*Belief in Army's Concern for the Welfare of the Individual.* Good food, good medical care, intelligent job classification and assignment, adequate provisions for recreation and relaxation, adequate furlough policies, educational opportunities, welfare service, etc., are important values in themselves and greatly affect the satisfaction of the soldier with Army life. But these things also take on a deeper significance, for by them the soldier makes up his mind on the degree to which the Army really values him as an individual and is genuinely concerned with his welfare. "I wouldn't feed a dog the stuff they dish out here," not only says, "The food isn't good" but also says, "We mean about as much as so many dogs to our officers." Many privations and hardships will be endured without affecting general morale if the soldier has confidence in the competence and concern of the leadership with respect to providing satisfactory conditions.

A great many enlisted men and some conscientious officers believe that the welfare of the individual is of no concern to the Army. The experiences supporting this belief are not confined to any one branch or stage of training; they are experiences common to all inductees and they may be encountered at many stages in the soldier's career. The following comments by officers assigned to typical stations will serve as illustrations.

"The inductee gets his first impression of the army at the Armed Forces Induc-

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tion Station. The AFIS may appear to him as a collection of small huts with latrines two blocks away, an occasional coke machine, and some of the most frustrated soldiers in the Army as guides. If it does so appear, the effect may be strong enough to offset all the patriotic idealism he has learned on the outside. If the AFIS does not have this demoralizing effect, it is due to the soldier's personal convictions, which enable him to hold fast to the primary importance of his job and hence to recognize the secondary importance of the AFIS environment."

"In the early stages of training, the inductee is further disillusioned by violent antagonisms between the bull-gang company duty men of the old Army and the administration staff clerks of the new Army. He may be more impressed by the noncoms' dog-eat-dog attitude than by their concern for his training as a soldier."

"The men in my basic training company considered the Army unfair because they frequently saw their interests sacrificed to the personal ambitions of the Commanding Officer. The last straw was the replacement of a first sergeant, whom they trusted because he presented their grievances to the Commanding Officer, by a yes-man who played politics."

"During their basic training most soldiers meet one or more officers who make no effort to conceal their selfish disregard for the men's personal feelings. Recognition of this attitude on the part of officers drops the soldier's morale flat. His opinion that the Army system is unfair is confirmed by the failure of some commanding officers to use his training time efficiently and to allow him some personal decency and dignity. The soldier is pre-conditioned against willing response to leadership by being required to put in extra training time which he feels is time wasted, and by being subjected to undeserved humiliations, filthy latrines, etc."

"Throughout the soldier's career, from induction to the front lines, his attitude toward the Army's fairness is in a large part determined by pass and furlough and promotion policies. The soldiers in the Caribbean (and probably most other outposts) know they won't get home for a long time nor can they be promoted while the T/O's are filled. Isolation and monotony they feel should be shared. In less degree, any soldier becomes cynical about the Army's concern for the individual when furloughs are not given to those who have put in most time at monotonous and isolated duty, and when promotions are not used to reward efficient service. The least they can expect is the commanding officer's frank explanation of reasons for such privations and his formulation of a policy which all can understand."

"The officers in many outfit are retreads. With the exception of the dental surgeon they are making more money in the Army than they ever made before. They abuse their men for the fun of it and are grossly partial in their assignment of duties and punishments. The 'whys' of an order are seldom explained on occasions when explanations are both appropriate and necessary. Some of these officers who are married have frequent parties with other women and laugh at married soldiers who request home furloughs. What discipline these officers maintain is accomplished by a policy of 'inspect the hell out of them!' Arrogant emphasis on the trivial is the rule of the outfit."

All these examples bear on the problem of the officer. The problem of concern for the general welfare of men may seem remote from orientation problems, but the officer must face the fact that this problem can make or break the prosecution of his mission. Obviously, the officer cannot attempt to be a 'butinsky,' meddling with operations conducted by specialists. He can, however, legitimately concern himself with these problems and talk over remedies with the commander. One of his most important jobs in this respect is to convince command, high and low, that these problems are morale problems, and that their solution is demanded by practical as well as humanitarian considerations.

*Satisfaction With Job Assignment.* Men's attitudes toward their job assignment strongly influence the four general attitudes: zeal, discipline, self-confidence, and satisfaction with Army life. Men with high satisfaction have a high degree of zeal. Case studies bearing on the problem of job satisfaction are worthy of attention. Two typical cases follow:

Certain units assigned to supplement the engineers on an important large project had more than normal reasons for dissatisfaction with their Army jobs. The

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more important were, firstly, that no effort was made at the outset to explain the strategic importance of the project nor the particular mission of the various units assigned to work on it. Hence many jobs of critical importance were not recognized as such by the men assigned to them. Secondly, non-coms who had won their stripes for certain abilities in the training stages were retained despite their obvious incompetence to get results in the field. This tended to make distasteful jobs which men would have found interesting under competent leadership. Thirdly, during periods of idleness enforced by bad weather, there was no apparent effort to plan constructive activities. There was rather a constant repetition of cleaning and policing details. Irritations were increased by restriction to the unit area. The last and perhaps most serious reason was the lack of any announced policy for the recognition of superior work. The evident effect was the men's belief that the Commanding Officer was more interested in himself than his men and that only officers got any recognition in the Army.

The other example comes from an air base in the U. S. The soldiers' dissatisfaction with job assignments at the base reached the stage where the Commanding Officer felt obliged to make a lengthy explanation for job assignments to the enlisted men on the field. The explanation took the form of a mimeographed document with the name of each soldier individually filled in. One was delivered to each soldier as a personal message from the Commanding Officer.

The Commanding Officer made an effort to explain why KP was being pulled so often by the average soldier. He also mentioned other types of distasteful jobs which men of necessity must do. He recognized that the field itself might be a bad spot, and pointed out that there were probably worse ones. He stated that due to the high proportion of intelligent men on this airfield there were not enough Class III or IV men who would be satisfied with KP or other such duty. He pointed to the case of the soldier who violently objected because he was assigned to the officers' mess, 10 miles away from the field in town. This he explained by the fact that the Army had been able to save $40,000 by renting the club in town instead of building one on the field. He spoke of numerous inspections which were made as a result of soldier complaints which had reached headquarters in one way or another. He also stated that a classification board had been at work and that soon there would be movements and changes. He promised that the men would find conditions bettered, including better mess and recreation facilities.

This type of explanation probably helped to convince the men that the Commanding Officer had the problem on his mind, but only action could lead to any real improvement in morale.

*Realistic Appraisal of the Toughness of the Job Ahead:* A swaggering Army rolled out of Washington one day. The ninety-day enlistments of many of its men were about to expire, but what matter—they would win the war promptly and go back home triumphant. Training had been scanty but the men were sure that they were unbeatable and that the enemy would crumple before their advance. War was new and wonderful and a cheap victory was at hand.

That was the Army, and that was the opinion it had of itself, until it came back along the road to Washington from Bull Run in a panic rout, bleeding, broken, and cursing the carriages of scared Congressmen who had driven out to see the victory.

Four years passed and hundreds of thousands died before the 'easy' victory was won. And more than once, the crumpled—repeatedly crumpled—overconfidence almost lost the war.

One of the important functions of an officer is to prevent overconfidence—to steel men for a grim, prolonged, and bloody struggle. A confidence in ultimate victory is, of course, desirable, but nothing is harder on morale than the disillusionment that follows the shattering of hopes that great ends can be accomplished at little cost.

Obviously, a program to instill in men an understanding of the toughness of the job ahead must convince the men that victory is so important that it is worth the cost. Without such conviction, education in the realities of modern war might breed despair.

In the United States, a belief that the job ahead is tough is not always related to desirable general attitudes. True, the men who believe the job ahead is difficult are more likely to have high self-confidence and high satisfaction. On the other

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hand, the men who believe the war is going to be difficult are the least likely to have the best attitude toward discipline. Apparently, neither extreme optimism nor extreme pessimism is a healthy state of mind. Another study indicates that the men least likely to accept their soldier role were those who thought the war would be over in less than a year and the men who thought the war would last three years or more.

Overconfidence may be in terms of overall attitudes toward the length of the war. It is reflected in speculation that "the war will be over by Christmas" and "We'll be home next year." It may, on the other hand take the form of a conviction that a certain outfit or certain weapons are invincible. For example, consider this report from an officer overseas:

The C.O. of a tank outfit reports that his men had developed the idea that the Nazis would be afraid of our tanks, that when they saw us coming they would retreat. This idea stayed with them until they saw their first action. When the Nazi antitank guns first hit them, the crews became panicky, and a retreat was ordered. It took two days for the men to get over their fright sufficiently to face the enemy again. Overconfidence paved the way for a serious morale setback which had important tactical consequences.

Overconfidence may be reflected in slackness of training, in bad tactical judgment, or in the personal attitudes of men toward their jobs. It is a thoroughly unhealthy attitude, and needs the most careful and energetically planned program of debunking. But care must be taken to avoid creating gloom and defeatism.

*Teamwork, Pride, and Confidence in Outfit.* Ancient military doctrine and modern attitude research findings agree that one of the keystones of the morale arch is the soldier's pride and confidence in his outfit and his sense of the teamwork of a fighting organization.

The streamers on the regimental colors, the citations, the special distinctions —these are the outward trappings of something real and important, the identification of individuals with the group.

It is in the nature of things for a man to want to be proud of his outfit—just as he wants to be proud of his town, his school, his club, or his friends. It is especially important that the soldier feel this pride in his outfit, which is town, school, club, and friends rolled into one. Upon mutual respect and confidence depends, in the last analysis, tactical success and individual safety.

Most of the men who rate high in pride and confidence in outfit also rate high in satisfaction with army life. Few of the men with low pride and confidence in outfit are most likely to be zealous and self-confident and to have a sound attitude toward discipline.

If the outfit has a history, it should be studied, worked up into talks, and presented to the men (and to the officers, as well, for no program can build pride and confidence in an outfit that does not first build pride and confidence in the officers).

If the outfit is new and lacks history, let the men know that they are expected to remedy the lack. Talk of other new outfits in this and other wars that started in the dust and mud of training camps, that fell over their own feet, that could not hit the target at 20 paces, but that trained and sweated until they formed a fighting team that wrote history with bayonets and gun powder.

Pride in outfit is influenced by many other things. An incompetent mess sergeant is a reflection on command and damages an outfit's self-esteem as well as its digestion. Pride in outfit is tied up with pride and confidence in leadership, and poor leadership will have trouble building pride and confidence. Most of all, pride and confidence in outfit is a product of a team sense—the proud sense of accomplishment that the football guard gets when he helps open a hole for the plunging back.

The soldier's pride in his outfit is developed by watching teamwork improve from month to month among the various units of the command. The adventures of several cannon companies in training for overseas service with infantry regiments—one 75mm howitzer outfit to a regiment—are instructive in this connection.

Since the cannon companies were activated only after their respective regiments were well along with their training, it was impossible for them to train with their regiments. Instead they were assigned to makeshaft quarters in an already crowded camp. All other troops in the camp had permanent installations, the comparison serving to deepen the sense of not belonging to anything which the cannon

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companies brought with them. The other troops at the camp furthermore were on a normal training schedule and so enjoyed a normal allowance of passes and furloughs. Not so the cannon companies, whose training was so delayed and so important that no men were excused. When the companies went from basic into unit training they were trained with an outfit, knowing that they would never serve with that outfit in the field. The consequence of these experiences was that the companies arrived overseas with no sense of belonging to a larger unit. Not only their technical training but their morale as well was impaired by lack of 'team practice' and 'team spirit'.

*Belief in the Importance of the Mission.* War, like any other large scale social undertaking demands an almost infinite variety in types of service. It calls for heroics in battle, dexterity in shops, painstaking work in offices. It calls for leadership and 'followership,' for brain and muscle.

A man has the right to feel that whatever he does in the Army is important—that it is just as important as any other job in the general overall project of winning the war. The soldier digging latrines with a medical sanitation company need make no apologies to the pilot of a 'Fortress' over Tokyo.

This right of any soldier to feel that his assigned duty is honorable and important is not, in itself, a matter of immediate concern on other than humanitarian grounds, but the commanders and officers who neglect this problem may well lower the efficiency of their men. It is a fact well known and long recognized in all personnel practice that the man who believes in his work works better than the man who does not think his work is worth a tinker's damn.

Here are the findings of attitude research in our own Army: The men who have the greatest faith in the importance of their own and their outfit's mission are more likely than other men to be highly zealous, self-confident, satisfied with Army life, and to have a healthy attitude toward discipline.

## THE NEED FOR ORIENTATION

*Faith in the Cause and the Future.* Military service demands greater sacrifices by personnel than any other occupation. These demands are infinitely beyond the range of normal occupational incentives—money, security, comfort. They are beyond the range, in many situations, of simple physical compulsion, since, to many men, the hell of battle is more unpleasant than any punishment with which he could be threatened. The soldier, then, must have a motive for the acceptance of isolation, danger, pain, and death. He must have a faith in the cause for which he fights, a sense that he has a tremendous personal stake in victory or defeat, a belief that from his sacrifice will come a lasting good.

Faith is no substitute for competence; but neither is competence a substitute for faith. The unreliabiliity of highly trained mercenary troops in many wars is proof of this fact. Faith is important long before the moment of battle. The man who is convinced that his cause is good—and important—will, on the average respond to training, discipline, and other aspects of Army life better than will the grudging soldier who is apathetic about the war.

The sharp immediacy of the problem of faith in the cause is high-lighted by the letter of a medical officer from the North African front. He wrote:

"One of the important things that we have learned in dealing with these cases (psycho-neurotic crack-ups) is the strange psychological handicap which the American soldier has to endure as contrasted to the enemy (or rather a German or a Jap, but not an Italian) soldier. Our boys are not angry, at least at first, and they do not have a clear idea of why they are fighting or what they are doing over here. They have a vague notion that Germany is somehow dangerous or wicked, but they don't see what it actually has to do with us. They are over here because they were sent here; they intend to do as good a job as they possibly can in whatever way they are told to do it, but their goal is get home as soon as possible. If, in order to do this they have to beat the Germans first they say, 'OK, let's beat the Germans and get it over with so we can go home.' Thus, their intentions, their determinations, are at best, secondary, not primary aims. They have very little feeling on the subject of the war beyond a cloudy notion that we will be whipped at the conference table, come peace, just as we were the last time; so that the whole project becomes enveloped in futility.

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"Nevertheless, the spirit of our troops is good. They are eager to get into the fight, because there's a fight going on and their friends are in it, and they want to finish it as soon as possible. When a soldier spends days living in the rain and mud on cold rations and then moves up to the battle area to spend the first 24 hours in his foxhole, not daring to move except at night because of the accurate enemy mortar fire and then, during the next day, makes repeated attempts to take the enemy position under heavy artillery fire and dive bombings during which most of his friends are killed, and he has absolutely no rest, and the bombs and shells keep falling all around him and every shell seems to be coming right at him but somehow or other just misses him, he may be calm enough at first but gradually develops more and more anxiety until it becomes almost impossible for him to control himself. He begins by thinking only of the objective of the attack, but as the battle goes on he thinks more and more of what's happening to his buddies and to himself, and he succumbs to fear which may overwhelm him and produce the severe picture of war neurosis.

"This does not happen too often, of course, but it is a tendency within everyone. One of the best forms of prophylaxis against it is a clear idea of what the fight is for. If the men could identify themselves with a cause, a compelling goal more important than themselves or their friends, they could take any amount of pounding. But because of the lack of indoctrination of our troops, this identification is very weak and likely to break down, especially when the battle is going against them.

"Our boys are doing a wonderful job over here; they've got more guts and courage than I every dreamed existed. But you could help them at home if you'd let them know what they're using that guts and courage for. It's not hard to show them the meaning of the war, because I have done it often. It is simply a question of making the effort."

That is, of course, one man's opinion. But it is the opinion of a psychiatric specialist who has seen action and has had the job of repairing the mental damage done by battle in this war.

Closely tied up with a faith in the cause and the future is the attitude of men toward our allies. A recent study shows that practically all American soldiers are sold on the job Russia and Britain are doing in fighting the war, but many of the men say we are likely to have to fight Russia in the next quarter century and many of the men have the same fear about Britain.

As the World War II grows in intensity and increasing number of U. S. troops become engaged in it, our casualty lists steadily lengthen. Thousands upon thousands of soldiers have been honorably discharged because they were no longer mentally fit for military duty. These men were not lacking in intelligence—they became psychoneurotics because they were not mentally prepared for the situations they had to face.

German and Japanese troops are not nearly so subject to mental breakdowns as ours. The reason for this is obvious. For years the Fascist nations have prepared their people for war and their soldiers believe that they are fighting for a 'Cause.' To us their cause is utterly wrong, but to them it is sacred and they are prepared to endure any amount of suffering for it. Our youth were not brought up in such beliefs and, consequently, the Army has established an orientation course designed to accomplish six objectives; each of which is discussed in detail below.

**Know Why We Fight.** This is the fundamental phase of orientation. America has never participated in a war where the causes and events leading to war were more complex or less direct. The gigantic proportions, the audacity of the global conpiracy in itself, challenged the comprehension of many of our leading statesmen. This conspiracy and how it threatens our very survival still challenges the understanding of many of our soldiers.

American soldiers must be brought to an understanding of the fact that the systematic conquest of the world has been planned for many years, in closest detail, by the militarists of Germany and Japan; that in deliberate quest for power, the enemy nations have methodically shaped the events leading to war. He must understand that the people of the enemy countries have been regimented, their thoughts beaten into line, their liberties suppressed, and finally, weapons

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placed in their hands; that America has always been a target for enemy ambitions because the Nazis and Japanese leaders see in us the industrial and natural resources imperative for their full world ownership. He must also understand that the enemy sees in our democracy an everpresent threat to his own ambitions because he recognizes, perhaps even more than we do, that the world cannot exist half enslaved and half free and therefore stands determined to make it all slave: that before, the enemy could attack us he had to attack his neighbors, and that this was undertaken with such success in 1940 and 1941 that an onslaught against the United States itself followed logically.

If the soldier knows these things, he will realize that he is in the armed forces to insure the preservation of his country and he will interpret training, discipline, and eventually combat in these terms.

**Know the Enemy.** It is only by understanding the nature of the enemy, the brutal methods by which he is attempting his gigantic plan of conquest, his wilful barbarisms, and the terrorisms he has practiced on others and will practice on our own people if he is victorious, that training can be progressively narrowed down to the desire to get at and destroy him.

The American soldier must understand that the enemy considers lies, treachery, and outrages all appropriate tools for the accomplishment of any purpose; that he teaches his people that pity, respect for the weak, and Christian ethics are shameful; that he tells his people that they're an exalted race with a divine mission to rule the world. He must understand that the enemy establishes a reign of fear everywhere, extending it in conquered countries to a reign of terror, believing that it is essential for the maintenance of absolute rule; that the enemy has a monstrous plan, of which all men, women and children in America are to be victims and that this threatens every human being on this earth who has known what it is to move and think and live as a free individual.

These are only a few of the things that the American soldier must know. When he knows them, there will be no question about his desire to fight.

**Know Our Allies.** As the war turns more surely against the enemy nations, there will be increasingly aggressive and subtle attempts to create dissension and distrust among ourselves and our Allies. This can be best counteracted by anticipating and forestalling such attempts.

The American soldier must understand that it is impossible for us to win this war alone, that we and our allied nations have been attacked by a common enemy, and that every one of the United Nations is struggling for its very existence—fighting to prevent itself and the world from becoming the slave property of the enemy. He must understand that to win this struggle all of us are forced to pool our strength, manpower, resources, and strategy in whatever ways will most quickly and thoroughly crush the enemy and that any single member of a team such as the United Nations owes respect to the others—respect for their fighting prowess and the courage of their home fronts. People who lived through the blitz of Britain, who turned back the Nazis at Leningrad, and El Alamein and who held the Japanese in check for nearly a decade, are entitled to our admiration.

**Know and Have Pride in Outfit.** Pride of outfit (esprit de corps) is the yeast for many morale ingredients. It can be planned at every echelon level—Pride of the individual as a soldier, pride in platoon, in company, or regiment and division, pride in branch of service, pride in the Army and above all, pride in country.

To achieve this, the soldier must understand that great armies have always been built on the pride the individual takes in himself as a soldier; that his unit has or can build tradition which, as he adds personally to it, will be a permanent source of pride to him in the world after the war; that his branch of service, whether it be Infantry, M.P., Medics, or Air Corps is indispensable to victory, and that his is a glorious job whether he is running interference or carrying the ball. He must understand that this country symbolizes in the freedoms for which it fights the only hope for millions of enslaved peoples who have experienced the treacherous pact of our enemies.

**Know the News and Its Significance.** Research has revealed among soldiers a wide-spread ignorance of national and international affairs even though there

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is significant importance in their being thoroughly and progressively informed on such subjects.

The American soldier has taken on the profession of arms for the defense of his country. To the majority this is a new profession. The extent to which the soldier is interested in and relates that profession to his ideals as a citizen, the better soldier he will be.

The American soldier must know that he has a personal stake in the progress of our arms on every combat front. He must know that the successes, reverses, and problems of our Allies have a personal relationshop to his own mission; that as a soldier his understanding of the inter-relationship of international events will have a direct bearing on his ability to contribute in a constructure way to the kind of a world he will want after victory has been won. He must understand that such a world will not be possible without complete destruction of the enemy on every front, not just one.

Although a knowledge of the underlying causes of the war is a foundation for such an understanding, its value will be lost if there is not ceaseless building on this foundation through frequent discussion of what goes on in the world and particularly the progress of the war.

**Know and Have Faith in the United States and Its Future.** The soldier must understand that today's war is but a part of the bigger war which Man has been waging from time immemorial in order to win and preserve his freedom. Ours is a glorious tradition of never-ending struggle for liberty. From time to time sinister forces have arisen and threatened to destroy us but throughout all our history the undying spirit of free men always emerged victorious.

Our long up-hill struggle has not been an easy one. Every generation has had to guard its freedom or run the risk of losing it. Every generation has had its weaklings who imagined that they saw comfort and security by surrendering some of their basic human rights; but always those who were strong in their faith in our democracy prevailed.

The lessons of the past give the answers to the questions of the future. Ours is not yet a perfect democracy, but if our history means anything at all it means that we strive in that direction.

These are the times that call for healthy, wholesome, and vigilant defenders of our democracy. Let those who are cynical, pessimistic, or defeatist look into our past and let them learn from Washington, Jefferson, Patrick Henry, Tom Paine, Sam Adams, Ben Franklin and from Abe Lincoln, and the thousands and thousands of others who knew what it meant to fight on when everything looked black and dismal. Let the soldier know our history and be inspired by its meaning.

Let our soldiers have a deep and abiding faith in democracy. Let us admit that at times, in the past, it has not worked too well, but let us remember that we know how to make it work effectively. Change is the essence of all life and we Americans are expert at innovation and change. Our goal is an ever-expanding democracy—to the end that ALL of our citizens will be assured the abundant life which is expressed and promised in the Four Freedoms.

All of this leads to a soldier who *thinks* and a 'thinking' soldier is a weapon which our enemies can never match.

This, then, is the platform for effective orientation work and for the 'Orientation Course.'

## MILITARY COURTESY

**Meaning.** Courtesy consists of acts of politeness, of civility and respect. It includes as an essential element a full and proper appreciation of the rights of others. Military courtesy is the term used to classify or include those special acts and ceremonial procedures which are required between members of the service, or which are habitually observed because of the equally strong force of custom and usage. In addition to many prescribed formalities it includes all of those common acts of civility, good breeding, and thoughtfulness which are observed by gentlemen in all their activities. It is a necessary part of private and official life. Courtesy encourages harmonious relationships between individuals, it facilitates the conduct of affairs, and adds a smooth and pleasant note to human contacts. It has been observed that whenever the common acts of courtesy disappear from a military unit, discipline ceases to function. The arrival of war emphasizes the

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great need for a high degree of observance of the rules of courtesy. Hence, the truth of the official statement, "Courtesy among military men is indispensable to discipline," is borne out by history and experience.

Military courtesy is not 'one-sided.' It implies polite and considerate behavior to others, whether junior or senior, and whether or not members of the military service. In general, juniors habitually give the same deference toward their seniors that any courteous person does to his elders. These courtesies should be shown promptly and smartly. Slovenly and half-hearted execution of these acts is in itself discourteous.

**Scope of Military Courtesy.** There are prescribed procedures of military courtesy for many occasions and circumstances. Some courtesies, but not all of them, envolve rendering the salute. The uninitiated tend to regard the beginning and end of military courtesy as the rendering by soldiers of the hand salute to officers, but the subject is far more inclusive than such a superficial approach would indicate.

## MILITARY COURTESIES OF OUR ALLIES

Military courtesy varies but little in the armed forces of our Allies. An American soldier will salute commissioned officers and pay respects to the anthems and colors of the United Nations just as he will those of his own country. Commissioned officers of our Allies may be recognized either by shoulder or sleeve insignia and often by headdress.

**British Empire.** British soldiers salute only when covered and then by raising the hand, palm outward, to the forehead in a circular motion. Noncommissioned officers do not salute each other, but salute all commissioned officers.

**The U. S. S. R.** Every junior salutes his senior, even in the noncommissioned grades. The Soviet Army therefore carries the salute far more deeply into the military structure than do the United States and British armies. The friendly greeting "Hello" is used among all ranks; it is pronounced and means the same to them as it does to us.

**France.** French soldiers never salute uncovered. Every junior salutes his senior, and privates are addressed as *Soldat.* Otherwise French military courtesies vary but slightly from our own. "Mon Capitaine" (My Captain) is the way you hear a French soldier address his commander. Usually the phrase "Je vous presente mes respects" (I present you my regards) will follow, or simply "Mes respects, mon commandant" or "mon colonel," depending upon the rank of the superior officer addressed.

**China.** Outdoors, the Chinese soldier salutes by hand but inside he executes a slight bow from attention. A junior of any rank salutes his seniors and addresses them not by rank but by the job assigned, such as "Company Commander" or "Section Leader." The Chinese soldier sometimes wears a removable band around his left arm to denote his unit, and he proudly stands at attention when he hears the phrase "Long live the Generalissimo."

## THE SEVERAL MILITARY SALUTES

**History of the Military Salute.** Men of arms have used some form of the military salute as an exchange of greeting since the earliest times. It has been preserved and its use continued in all modern armies which inherit their military traditions from the Age of Chivalry. The method of rendering the salute has varied through the ages, as it still varies in form between the armies of today. Whatever the form it has taken it has always pertained to military men, and its use definitely restricted to those in good standing.

The genesis of the military salute is shrouded in the mysteries of the ages. It is known that in the Age of Chivalry the knights were all mounted and wore steel armor which covered the body completely, including the head and face. When two friendly knights met it was the custom for each to raise the visor and expose his face to the view of the other. This was always done with the right hand, the left being used to hold the reins. It was a significant gesture of friendship and confidence, since it exposed the features and also removed the right hand—the sword hand—from the vicinity of the weapon. Also, in ancient times, the freemen (soldiers) of Europe were allowed to carry arms; when two freemen


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met, each would raise his right hand to show that he held no weapons in it and that the meeting was a friendly one. Slaves were not allowed to carry arms, and they passed freemen without the exchange of a greeting. In the Middle Ages gentlemen often went about clothed in heavy capes under which swords were carried; upon meeting a friend, the cloak was thrown back by raising the right arm, thus disclosing that the right hand was not on the sword hilt. The civilian counterpart of the salute is manifested in various ways such as raising the hand when greeting a friend, tipping the hat when meeting a lady, and using a sign of recognition between lodge members. This sign is always one of greeting between friends and is given willingly. The military salute is given in the same manner—that of pride in giving recognition to a comrade in the honorable profession of arms. The knightly gesture of raising the hand to the visor came to be recognized as the proper greeting between soldiers, and was continued even after modern firearms had made steel armor a thing of the past. The military salute is today, as it seems always to have been, a unique form of exchange of greeting between military men.




Figure 1.




Figure 2.

**The Different Forms of the Salute.** There are several forms in which the prescribed salutes are rendered. The officer uses the hand salute, the hand salute while horsemounted, and the salute by removing the civilian or military headdress; although the use of the saber has been discontinued, the position of *present saber* is the salute with the saber. Enlisted men use each of the methods (except with the saber) and utilize also the several methods of saluting with arms, such as the rifle salute and the salute by a sentinel armed with a rifle.

The hand salute is the usual method. While in most instances it is rendered while standing or marching at attention, it may be rendered while seated; *e.g.*, an officer seated at his desk who acknowledges the salute of an officer or soldier who is making a report.

The salute by placing the headdress, held in the right hand, over the left breast is used under three conditions. At a military funeral, except in inclement weather when the hand salute is used, all military personnel use this form of the salute whether in uniform or civilian clothes. A member of the military service dressed in civilian clothes and wearing headdress uses the method to salute the national anthem or "To the Colors." While in the same dress, this salute is used in paying homage to the national flag or color. It is noteworthy, however, that the hand salute is used by individuals in civilian clothing uncovered as a courtesy to the national athem or the national flag or color.

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**General Rules in Regard to Saluting.** All persons in the military service are required to salute at all times when they meet and recognize persons entitled to the salute, the junior saluting first.

Those persons entitled to the salute are commissioned officers (including women) of the Army, Navy, Marine Corps, Coast Guard, warrant officers, flight officers, and commissioned officers of allied nations in time of war. It is also customary to salute officers of friendly foreign countries when recognized as such.

Saluting distance is that distance at which recognition is easy. Usually it does not exceed 30 paces. The salute is rendered before the person to be saluted approaches closer than 6 paces. This permits him time to recognize and return the salute.

In executing the salute the head is turned so as to observe the person saluted. The salute is held until returned by the person saluted or until he has passed. A salute is returned by all officers entitled to it unless they are in formation when only the senior returns the salute. The salute must never be rendered in a casual or perfunctory manner, nor with pipe, cigar, or cigarette held in the mouth or in the right hand.




Figure 3.




Figure 4.

Covered or uncovered, salutes are exchanged in the same manner.

An enlisted man dressed in civilian clothes salutes an officer when he recognizes him, even when both are in civilian clothes.

A group of enlisted men within the confines of military posts, camps, or stations and not in formation, on the approach of an officer, is called to attention by the first person noticing the officer; if in formation, by the one in charge. If out-of-doors and not in formation, they all salute; in formation, the salute is rendered by the enlisted man in charge. If indoors, not under arms, they uncover.

The salute is rendered but once if the senior remains in the immediate vicinity and no conversation takes place. If a conversation takes place, the junior again salutes the senior on departing or when the senior leaves.

Usually the junior salutes first. However, in making reports, the person rendering the report salutes first, regardless of rank. An example of this is the case of a battalion commander rendering a report to the regimental adjutant during a ceremony.

The salute is rendered only at a halt or a walk. If running, a person comes down to a walk before saluting; a mounted person at a trot or gallop comes down to the walk to salute.

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Drivers of vehicles salute only when the vehicle is halted. Any other individual in the vehicle renders the hand salute whether the vehicle is halted or in motion. An officer in charge of a detail riding in a vehicle renders the hand salute for the entire detail.

Organization or detachment commanders when not a part of a larger formation salute officers of higher grades by bringing the organization or detachment to attention before saluting.

The salute is always rendered by a junior on reporting to a senior. He will also salute on the termination of the interview, or upon leaving.

A soldier reporting for pay answers "Here" when his name is called, steps up to the pay table, salutes the officer making payment, counts his money as it is placed before him, picks it up, and leaves the room. The officer making payment does not return the salute.

**When Not to Salute.** Salutes are not rendered by individuals in the following cases:

An enlisted man in ranks and not at attention comes to attention when addressed by an officer.

Details and individuals at work do not salute. The officer or noncommissioned officer in charge, if not actively engaged at the time, salutes or acknowledges salutes for the entire detail.

When actively engaged at games, such as baseball, tennis, or golf, one does not salute.

When standing to horse or leading a horse, one does not salute.

While crossing a thoroughfare, not on a military reservation, when traffic requires undivided attention.

In churches, theatres, or places of public assemblage, or in a public conveyance, salutes are not exchanged.

When carrying articles with both hands, or when otherwise so occupied as to make saluting impracticable.

No salute is rendered to persons by a member of the guard who is engaged in the performance of a specific duty, the proper execution of which would prevent saluting.

A mounted or dismounted sentinel armed with a pistol does not salute after challenging. He stands at *raise pistol* until the challenged party has passed.

The driver of a vehicle in motion is not required to salute.

Indoors, salutes are not exchanged except when reporting to a senior.

## PERSONAL COURTESIES

In a mess room or mess tent, an enlisted man addressed by an officer ceases eating and sits at attention until completion of the conversation.

An enlisted man who meets an officer on a staircase or in a hallway halts and stands at attention.

When accompanying a senior, a junior walks or rides on his left.

Military persons enter automobiles and small boats in inverse order of rank; that is, the senior enters an automobile or small boat last and leaves first. Juniors, although entering the automobile first, take their appropriate seat in the car. The senior is always on the right.

## HONORS

To the "National Anthem" or "To the Colors." Whenever and wherever the national anthem or "To the Colors" is played outdoors (not in formation), at the first note thereof, all dismounted personnel present will face the music, stand at attention, and render the prescribed salute, except that at the "Escort of the Color" or at "Retreat" they will face toward the color or flag. The position of salute will be retained until the last note of the music is sounded.

Those mounted on animals will halt and render the salute mounted. Individuals leading animals or standing to horse will stand at attention but will not salute.

Vehicles in motion will be brought to a halt. Persons riding in a passenger car or motorcycle will dismount and salute. Occupants of other types of military vehicles remain seated at attention in the vehicle, the individual in charge of each

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vehicle dismounting and rendering the hand salute. Tank or armored car commanders salute from the vehicles.

The above marks of respect are shown the national anthem of any friendly country when played upon official occasions.

When indoors, officers and enlisted men will stand at attention and face the music or the flag if one is present. They will not salute.

**To the National Colors.** When passing or being passed by an *uncased* national color or standard, honors are rendered by saluting when the color or standard is 6 paces away and is held until it has passed or has been passed by 6 paces.

Small flags carried by individuals and flags on flag poles are not saluted.

**Personal Honors.** When personal honors are rendered, officers and men present, not in formation, salute and remain in that position until the completion of the flourishes, ruffles, and march.

When the cannon salute is rendered, individuals who are members of the official party and others in the immediate vicinity will conform to the actions of the person being honored. A cannon salute to the nation requires no individual action.

**Military Funerals.** All persons in the military service in uniform or in civilian clothes, attending in their individual capacity or as honorary pall bearers, will stand at attention uncovered, with headdress held over the left breast, at any time the casket is moved by the casket bearers, and during services at the grave, including the firing of volleys and sounding of 'Taps.' During prayers, heads will be bowed. In case of extreme cold or inclement weather, they will remain covered and execute the hand salute in lieu of uncovering.

Military prsonnel will come to the salute on the passage of a caisson or hearse bearing remains as a part of a funeral procession.

## UNCOVERING

Officers and enlisted men under arms as a general rule do not uncover except when:

Seated as a member of or in attendance on a court or board. (Sentinels over prisoners do not uncover.)

Entering places of divine worship.

Indoors when not on duty and it is desired to remain informally.

In attendance at an official reception.

## VISITS TO WAR VESSELS

A vessel of war will be approached and boarded by commissioned officers and visitors in their company by the starboard (right) side and gangway; all other persons will use the port gangway. The commanding officer of the ship may change this rule, if expedient.

In entering a boat, the junior goes first and other officers follow in order of rank; in leaving a boat, the senior goes first.

An officer paying a boarding visit to a vessel of war or transport is met at the gangway by the officer of the deck.

The salutes to be exchanged upon boarding and leaving a vessel of war are prescribed below and conform to regulations of the United States Navy. All members of the Army visiting a vessel of war will conform.

All officers and men, whenever reaching the quarter-deck either from a boat, from a gangway, from the shore, or from another part of the ship, will salute the national ensign. In making this salute, which will be entirely distinct from the salute to the officer of the deck, the person making it will stop at the top of the gangway or upon arriving upon the quarter-deck, face the ensign, and render the salute, after which the officer of the deck will be saluted. In leaving the quarter-deck, the same salute will be rendered in inverse order. The officer of the deck will return both salutes in each case, and shall require that they be properly made.

The commanding officer will clearly define the limits of the quarter-deck; it will embrace so much of the main or other appropriate deck as may be necessary for the proper conduct of official and ceremonial functions. When the quarter-deck so designated is forward and at a considerable distance from the ensign, the salute

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to the ensign will not be rendered by officers and men except when leaving or coming aboard the ship.

The salute to the national ensign to be made by officers and enlisted men with no arms in hand will be the hand salute, the headdress not to be removed.

All officers in the party salute the ensign, but only the senior renders or returns the salutes, other than that to the ensign, given at the gangway of a naval vessel.

## CUSTOMS OF THE SERVICE

A custom is an established usage. Customs include positive actions (things to do) and taboos (things to avoid doing). Like life itself, the customs which man observes are subject to a constant but slow process of change. Many practices which were habitual a generation or two ago have passed through a period of declining observance, and then into the limbo. New customs arise to supplant the old.

The Army has its own customs. Some have been handed down from the distant past and others are of comparatively recent origin. Those which persist stand on their own merits. They are unwritten in the sense that they are not embodied in official orders or regulations. Many Army customs complement procedures which are required by military courtesy, while others add to the graciousness of garrison life. The breach of some Army customs merely brands the offender as ignorant, or careless, or ill-bred; but there are others the violation of which would bring official censure or disciplinary action. To a certain extent they are included within the meaning of the "Customs of War," to be found in the oath of members of a courts-martial. The customs of the Army are its Common Law. Many of its usages are as firmly established as procedures which are prescribed officially.

## CALLS

*Official Calls.* An officer arriving at a post, whether for duty or for a visit longer than 24 hours, will call on the post commander at his office and at his quarters unless directed otherwise by the adjutant. He ascertains from the adjutant what other calls are customary, when they should be made, and complies therewith. The official visits to the post and intermediate commanders should be repeated at their residence during proper calling hours within 24 hours after arrival. If the commander is married and his wife is present on the post, it is customary for the officer making the visit at the residence to be accompanied by his wife. These calls are formal and ordinarily should last no longer than 15 minutes. It is normally not necessary for the new arrival to make other calls until the officers of the battalion, regiment, or garrison have called on him.

*Calls of Courtesy.* The interchange of visits of courtesy between officers is of great importance, and the well-established customs of the Army in this respect will be scrupulously observed. Failure to pay the civilities customary in official and polite society is to the prejudice of the best interests of the service. Calls are made at a time convenient to the officer upon whom the call is to be made. As calling customs vary somewhat at different posts, camps, and stations, and since, in times of emergency, formal calls on the commanding officer only are required, it is wise to ascertain local practices from the adjutant. It is customary for officers to call on a new arrival as soon as he is situated so that callers can be received comfortably and without embarrassment. If the newcomer is married and his family is present, ladies call with their husbands.

Formal calls are those made in the discharge of an obligation. A formal call ordinarily should not exceed 15 minutes' duration. An officer should be exceedingly punctilious about formal calls. Calls should ordinarily be returned within 10 days.

It is customary for all officers of a unit or garrison to call upon the commanding officer on New Year's Day.

An officer who is assigned or attached to a place and who is about to depart permanently therefrom makes a parting visit to his immediate commanding officer and to the commander of the post, camp, or station. The making of 'P.P.C.' calls on friends prior to departure is also an established custom of the service. PPC (*pour prendre conge*, Fr. to take leave) written in lower left corner of calling card indicates nature of call.

*Calling Hours.* Inquiry should be made of the adjutant as to the normal calling

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hours in effect at the post, camp, or station concerned. Evening calls are usually made between 7:30 and 9:00 p.m.

*Dress When Calling.* Proper uniform, or, when specifically authorized, civilian dress is worn.

*Calling Cards.* Calling cards are left when making formal calls. A man should leave one card for each adult member of the household, including guests. Ladies leave one card for each adult lady of the household. More than three of any one card should never be left, however, regardless of the number of people being called upon.

The above calls of courtesy are customs of the Army that are scrupulously observed during times of peace but on most posts and stations in the United States have been discontinued for the duration of the war, or curtailed. Since they are considered optional by some commanders, newcomers should consult the post adjutant and regimental or battalion adjutant as to the desires of the commanding officer concerned. In other words, local ground rules apply. See your adjutant.

As an example, early in 1941 a young second lieutenant reported for duty to a certain tank regiment at Ft. Knox. Even at that time, the regimental adjutant informed the lieutenant that it was the wish of the colonel commanding the regiment that the customary courtesy calls were to be dispensed with. In lieu of this, the adjutant took all new officers in to the 'Old Man's' office. The Colonel and his Executive Officer welcomed the newcomer, briefed him on regimental history, battle streamers, and little customs and hints on what was expected, all of which was more or less of a short "pep" talk of 5 or 10 minutes. This made the lieutenant feel he was more a part of the regiment and after all, that is the original intention of such courtesy calls.

## MESSES

The officers' mess is important as a meeting place of officers, and customs of the service have laid down strict rules regarding it. These rules vary at different posts and in different unit messes. However, in general, an officer never attends a meal unles he is properly dressed. The senior officer is the president of the mess and receives due consideration as such. Similarly, this same consideration may apply to the senior officer at any table in the mess.

Usually the evening weekday meal and the Sunday midday meal are formal except in the field. At these meals, it is customary in some messes to await the arrival of the senior officer before being seated. Normally, no one leaves the table until the senior officer present has finished his meal or otherwise excuses them. Exceptionally, when departure is necessary, the officer requests to be excused. If a member of the mess arrives late, he expresses his regrets to the president of the mess before taking seat.

It is customary for officers of an organization, and sometimes their families also, when invited, to eat holiday meals in the mess of their company, troop, or battery.

## SOCIAL FUNCTIONS

It is customary for all officers to attend garrison social functions and to make them pleasant affairs. Procedure is similar to that at like civilian functions.

Officers of all grades make a point of presenting themselves to seniors, especially to their commanding officers and their families.

Visitors must not be neglected. They must be considered as guests of the assembled group. All officers must be solicitous for their entertainment and well-being.

Official subjects are avoided at these functions. In time of war, formal military social gatherings are curtailed to a great degree.

## MISCELLANEOUS RULES

Distinguished visitors, either military or civilian, are generally honored by appropriate receptions, either by the commander or by the officers of the garrison. Although such gatherings are primarily social, nevertheless they have an official aspect. Attendance is regarded as obligatory and absence therefrom should occur only for those reasons which necessitate absence from a military formation.

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When the commanding officer says, "I desire," or "I wish," rather than, "I direct you to do so-and-so," this wish or desire has all the authority of an order.

Custom demands that officers be meticulous about their personal appearance and especially so when in uniform. Their behavior at all times must reflect only credit on the military service.

In time of war, officers will wear the uniform at all times when out of doors, except when dressed for exercise in exercise clothes. The uniform will also be worn when dining at home if more than two guests are present.

Courtesy should be habitual. Courtesy to subordinates is as important as courtesy to superiors. Conversation between military personnel is conducted in the first and second person, except when making an official report.

An officer of the Army is prohibited from using, or permitting others to use, his military title in connection with commercial enterprises of any kind.

Personnel of the Army are prohibited from soliciting contributions for gifts to those in superior official positions. Likewise no officer will accept any gift or present offered or presented to him as a contribution from any person in government employ receiving a lesser salary than himself, nor will any officer, enlisted man, or civilian clerk make any donation as a gift or present to any official superior.

The knowledge that a false official statement is not only a military offense but is contrary to the ethics of the military profession, places personal and official responsibility for an official statement on a high level. Thus, an officer's official statement is usually accepted without reservation.

An officer who is sick in hospital is visited by the officers of the regiment in such numbers as may be permitted by the surgeon. An officer or soldier of his command visits him daily in order that his comfort or desires may receive attention.

## TABOOS

The officer's uniform and his official or social position must not be defamed. Conduct which is unbecoming an officer and a gentleman is punishable under the 95th Article of War. The confidence of the nation in the integrity and high standards of conduct of the officers of the Army is an asset which no individual may be permitted to lower.

It is the custom of officers to ask the adjutant or the executive for an appointment with the commanding officer. Often this may be done informally by stating the desire with an inquiry of whether the commanding officer can see you at once.

Never volunteer excuses or explain a shortcoming unless an explanation is required. The Army demands results. More damage than good is done by proffering unsought excuses.

Servility, 'bootlicking,' and deliberate courting of favor are beneath the standard of conduct expected of officers, and any who openly practice such things earn the scorn of their associates.

The commanding officer acquires the accolade. 'The Old Man,' by virtue of his position and without regard whatever to his age. When the term is used, it is more often in approbation and admiration than otherwise. However, it is never used in the presence of the commanding officer, and if used would be considered disrespectful.

The jumping of an echelon of command is called "going over an officer's head." For example, a company commander making a request of the regimental commander concerning a matter which should first have been presented to the commander of his battalion. The act is contrary to military procedure and decidedly disrespectful.

The conveying of gossip, slander, harsh criticism, and fault-finding are unofficer-like practices as is foul and vulgar language larded with profanity. Its use by officers is reprehensible.

Avoid leaning or lolling against a senior officer's desk. It is resented by most officers and is unmilitary. Stand erect unless invited to be seated.

Report at once when notified to do so. Never keep anyone waiting unnecessarily. On the drill field when called by a senior officer, go to him at the double.

Officers should avoid the impolite practice of approaching a senior officer, whom they know or remember, without giving their names, on the assumption that he

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will remember them. To avoid mutual embarrassment, officers should introduce themselves by name and, by a brief statement, refresh his memory as to their former association. This rule also applies when approaching members of a receiving line.

There are longstanding Army taboos against an officer in uniform pushing a baby carriage, against carrying large and bulky bundles while in uniform on the street, and carrying an umbrella.

Unless invited to do so, officers do not smoke in the office of the commanding officer as many commanding officers prefer that officers refrain from smoking during an official visit or inspection.

## DISPLAY OF THE FLAG

The following procedure will govern the display of the national flag:

When not flown from a staff, the flag should be suspended flat, whether indoors or out. When displayed horizontally or vertically against a wall, the blue field is uppermost and to the observer's left.

When displayed over the middle of a street, the flag is suspended vertically with the blue field to the north in an east-west street, or to the east in the north-south street, and at such a height as to clear all traffic.

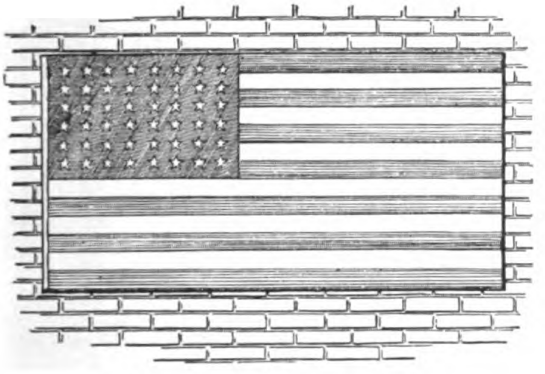


**Figure 5. Horizontal on Wall.**

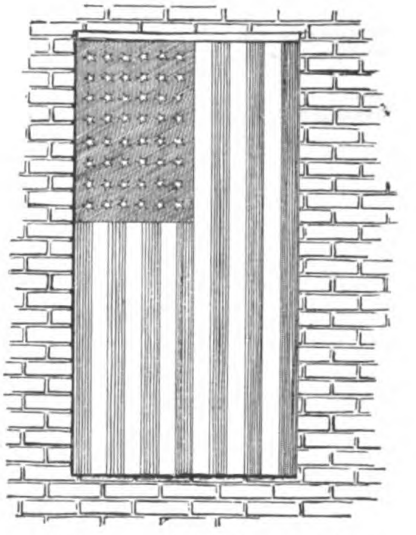


**Figure 6. Vertical on Wall.**

From a staff extending from a window, balcony, or front of a building, the blue field of the flag should be at the peak of the staff.

To indicate mourning from a stationary staff, the flag is placed at half staff.

When used to cover a casket, the blue field is at the head and over the left shoulder of the deceased. The casket should be carried feet first and the flag must not be lowered into the grave or allowed to touch the ground.

The flag is folded when not in use.

When used on a speaker's platform, the flag, if displayed flat, should be above and behind the speaker, but if flown from a staff, it should be at the speaker's right.

In church, if in the chancel, the flag is at the clergyman's right as he faces the congregation, and the church or other flag is at his left. If outside the chancel, the flag is at the right and front of congregation as it faces the cleryman. Other flags should be at the congregation's left.

In a procession with a line of other flags, the American flag is in front of the center of the line.

In a procession with a single other flag, the American flag is on the marching right.

To indicate mourning when the flag is on a small staff, as when carried in a parade, two streamers of black crepe of size commensurate with the flag are

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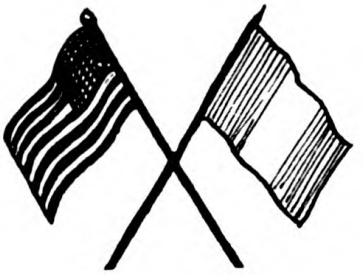


Figure 7.
Crossed with Another Flag.



Figure 8.
In a Group with Other Flags.

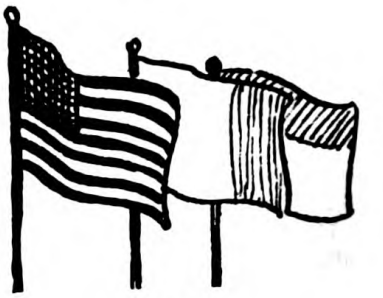


Figure 19
With Flags of Other Nations.

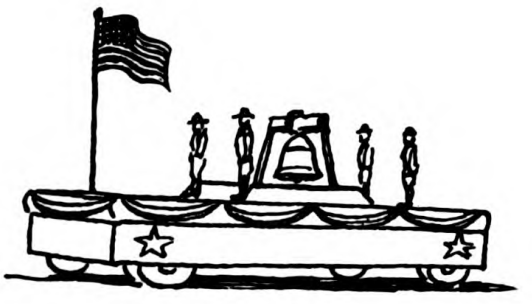


Figure 9. On a Float.

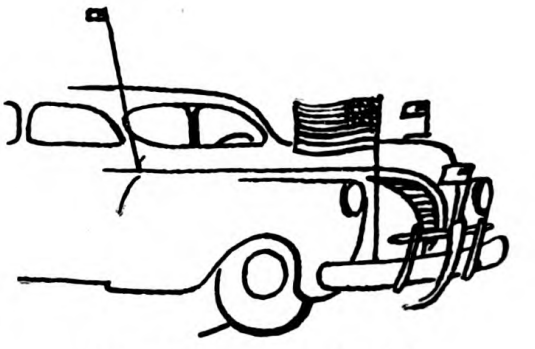


Figure 15. On an Automobile.

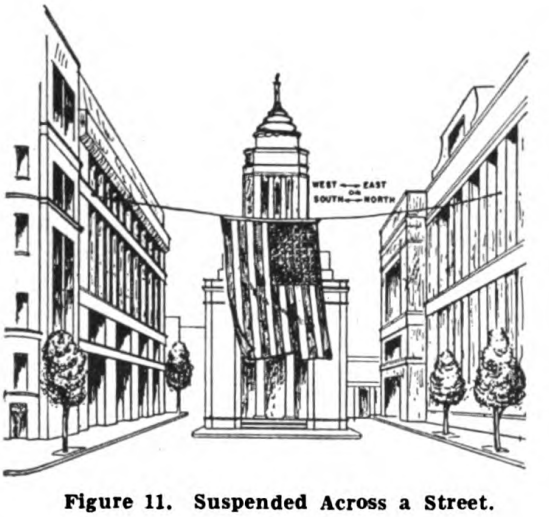



Figure 11. Suspended Across a Street.



Figure 12. In a Procession with Single Other Flag.



Figure 10. In a Procession with Other Flags



Figure 14.
To Indicate Mourning.

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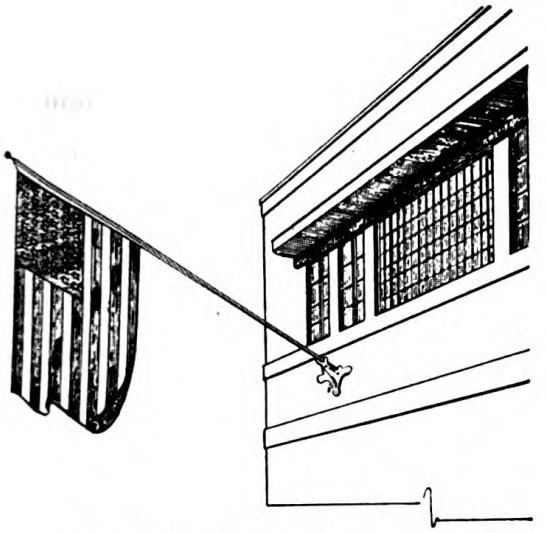


Figure 13. Horizontal on a Staff.

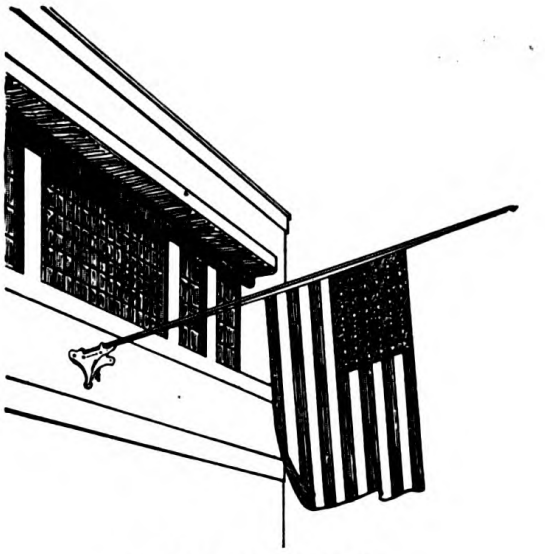


Figure 23. Half Staff.

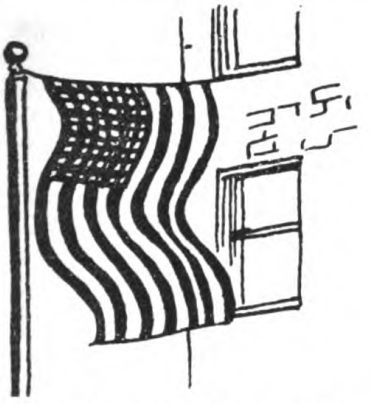


Figure 16. Suspended Over a Sidewalk.



Figure 21. On a Halyard with Other Flags.



Figure 20.
On a Speaker's Platform.

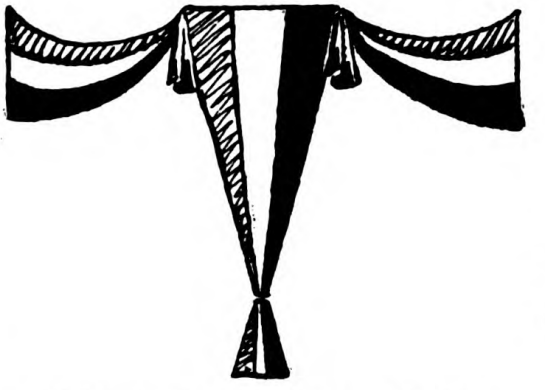


Figure 17. Bunting Used as Drapery.



Figure 22. In a Church.

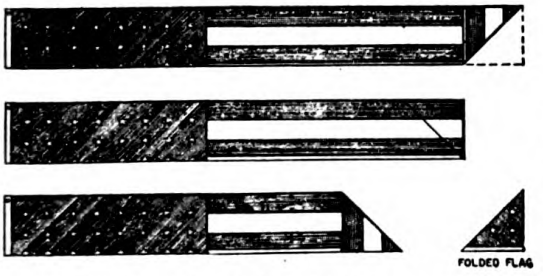



Figure 18. Manner of Folding.

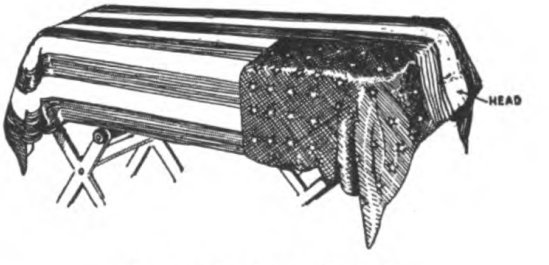



Figure 24. On a Casket.

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attached to the peak by the blue field in such a position that they will suspend freely.

The flag never shall be used as drapery in any form. For drapery, use bunting of red, white, and blue.

When the American flag and those of other nations are flown from adjacent staffs, the American flag should be at the right end of the line or to the observer's left. When flown with flags of other nations, all staffs should be of equal height and the flags of equal size so far as possible. International usage forbids display of one national flag above that of another in time of peace. When the American flag is one of several flags flown on adjacent staffs, it will be hoisted first and lowered last.

When flown on the same halyard with flags of States, cities, or societies, the American flag will be at the top.

When crossed with another flag against a wall, the American flag is on the observer's left and its staff is crossed in front of the staff of the other flag.

In a group of flags of States, cities, or societies, all displayed from staffs, the American flag should be at the center of and at the highest point in the group.

On a float in a parade, the flag must be displayed from a staff.

On an automobile, the flagstaff may be fastened to the bumper bracket as it is on the car of the President of the United States. It may be fastened to a small radiator ornament. It may, if on a staff, be fastened to the grill-work in front of the car. A very small flag may be attached to the top of the radio aerial.

When suspended over a sidewalk by a rope, extending from a house to a pole at the edge of the sidewalk, the blue field will be adjacent to the pole.

Soiled, torn, or badly faded flags should never be displayed. The should be destroyed by burning privately.

The flag should never be used as a costume or dress, should never be used on a car except attached to a staff, should never be used in any form of advertising nor should it be lettered.

The national flag is never dipped in salute nor is it ever permitted to touch the ground.

No letter is ever placed upon the flag.

## THE ORDNANCE FLAG

The flag of the Ordnance Department consists of the time-established escutcheon of the Department, in gold, superimposed upon a crimson field. The device (crossed cannon, shell and flame, and the words "Ordnance Department, U. S. A.") has been in existence since the early days of the Department when it was established as a separate corps of the Army under the leadership of Colonel Decius Wadsworth in 1812. Below the device is superimposed the motto 'Armament for Peace'. This expresses fully the time-honored function of the Ordnance Department.

The design and development of weapons and their production for our military forces are responsibilities which the Department has carried for more than 13 years. These responsibilities are greater now than at any time in the past. As they are met, the motto of the Department will be fulfilled, for only through adequate armament strength can the security and peace of our country be assured.

The Ordnance Department escutcheon contains the Ordnance insigne, the oldest military device of the American Army. It was adopted about 1833 and since that time has officially designated the Ordnance Department. Prior to its American adoption, it had been used by the British Grenadier Guards, the Royal Engineers and the Royal Horse Artillery. After its adoption by the American Army it was used by the Artillery (as well as by the Ordnance) until 1834 when the traditional crossed cannon was adopted by the Artillery. The Ordnance escutcheon (crossed cannon in circle with shell and flame above) also appeared first in 1833 and since that time has been used on all Ordnance publications, documents, and drawings. It is now the official seal of the Ordnance Department.

In this connection, it is interesting to recall another ordnance symbol—the broad arrow, long the crown mark of munitions of war in the British service.

The first recorded use of the broad arrow was in 1553 when Sir Thomas Gresham, founder of the Royal Exchange, brought gunpowder into England. The broad arrow was used as a distinguishing mark on the powder bags. However, the first ordnance use of a crown mark appeared in the reign of Charles I. The mark was

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nstituted to prevent illegal traffic in arms, and henceforward it was obligatory hat all muskets and other weapons issued from the King's stores for land or sea ervice be stamped or engraved with the broad arrow. A Royal commission ap-ointed in 1633 was directed to mark all small arms and armor with the letter "A" nd a crown, the hallmark of the Company of Armorers of London. Like the shell nd flame, the broad arrow has retained through the centuries its pristine mean-ng; namely, the acme of perfection. The Ordnance flag does not incorporate the




The Ordnance Flag

broad arrow as the symbol is essentially British, but it does combine in the Department's escutcheon both the crossed cannon and the shell and flame. In our service, the latter is indicative of the superiority of our military armament and of the integrity of all Ordnance operations relating to engineering, production, supply and maintenance.

The Ordnance flag now stands in the office of The Chief of Ordnance at the Pentagon Building across the Potomac from Washington, D. C.

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## PROCUREMENT OF UNIFORMS AND EQUIPMENT

The officer is required by law and regulations to provide his uniforms, his other clothing, and several articles of equipment at his own expense. There are other items of equipment which are issued to officers without cost at the organization to which they are assigned.

The articles of uniform and equipment which the officer is required to provide at his own expense are not the same for each of the several arms and services. War Department publication, Tables of Basic Allowances and AR 600-35 contain this information. However, the variations in requirements as to the articles of uniform and personal equipment are not numerous. An experienced military tailor who is informed of the grade and arm or service of his customer should be able to provide the exact uniform requirements. As a guide to the requirements, the required and optional articles to be purchased by officers are shown in the following table.

**UNIFORMS AND EQUIPMENT TO BE PURCHASED, DEPENDING UPON T/O.**

| Item | Unit | Required | Optional | Remarks |
|---|---|---|---|---|
| Watch, 7 jewel or better | | 1 | — | (Issued in some instances) |
| Belt, cloth (Officer's) | | 1 | — | |
| Belt, web, waist | ea | 1 | — | |
| Caps, garrison (Officers') | ea | 1 | — | |
| Caps, service (Officers') | ea | 1 | — | |
| Coats, wool, service (Officers') | ea | 1 | 1 | |
| Cords, hats, (Officers') | ea | 1 | — | (When the service hat is worn) |
| Drawers, cotton or woolen | pr | 3 | 2 | |
| Gloves, leather, dress, (Officers') | pr | 1 | — | |
| Gloves, white, cotton or lisle, (Officers') | pr | 1 | 1 | |
| Gloves, woolen, od, (Officers') | pr | 1 | — | |
| Handkerchiefs, cotton, white | ea | 6 | — | |
| Hats, service, od, (Officers') | ea | 1 | — | When prescribed. |
| Insignia, cap, (Officers') | ea | 1 | — | For officers when service cap is authorized. |
| Insignia, collar, (Officers,) "US" and Arm or Service | set | 1 | — | Two of each. (Additional sets are required for the overcoat, and raincoat as a matter of convenience). |
| Insignia, grade | pr | 2 | — | |
| Insignia, shoulder sleeve | ea | 1 | — | As per AR 600-40. |
| Insignia, sleeve, chevron | ea | 1 | — | As per AR 600-40. |
| Jacket, field | ea | — | 1 | |
| Laces, shoe, 40″ extra | pr | 1 | 1 | |
| Leggins, canvas, dismtd. | pr | 1 | — | |
| Neckties, cotton, khaki | ea | 1 | — | |
| Overcoats, od, (Officers') | ea | 1 | — | |
| Overshoes, arctic, cloth or all rubber.. | pr | — | 1 | |
| Pajamas | pr | — | 2 | |
| Raincoats, (Officers') | ea | 1 | — | |
| Shirts, cotton, khaki | ea | 1 | 2 | |
| Shirt, wool, od | | 2 | 1 | |
| Shoes, russet (Officers') | pr | 1 | 1 | |
| Slippers or gymnasium shoes | pr | — | 1 | |
| Socks, woolen, heavy, light or medium, or socks, cotton | pr | 6 | — | |
| Straps, chin, leather, hat | ea | 1 | — | For peace only. |
| Trousers, cotton or woolen | pr | 2 | 1 | |
| Undershirts, cotton or woolen | ea | 4 | — | |
| Uniforms, (Officers') | | — | — | See AR 600-25. |
| Books, blank, memorandum, pocket w/pencil | ea | 1 | — | |
| Brushes, clothes | ea | — | 1 | |
| Brushes, hair, military | ea | — | 1 | |
| Brushes, shaving | ea | — | 1 | |
| Brushes, shoe | ea | — | 1 | |
| Brushes, tooth | ea | — | 1 | |
| Buckets, canvas, folding 8-qt., 6-qt., or 10-qt. | ea | — | 1 | |
| Combs | ea | 1 | — | |
| Lockers, trunk | ea | 1 | — | |
| Mattress | ea | — | 1 | |
| Mirror, trench | | | | |
| Pillows, cotton or feather | ea | — | 1 | |
| Pillow cases | ea | | 2 | |
| Razor | ea | 1 | — | |
| Soap, hand | ea | 1 | — | |
| Soap or cream, shaving, cake or tube .. | ea | 1 | — | |
| Towels, face, 19″ x 36″ | ea | — | 2 | |
| Knife, pocket | ea | — | 1 | |

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There are many articles of equipment which can be obtained by officers from the organization to which they are assigned. These articles, in general, pertain to performance of duty in combat, in field training or field duty. Some of the items are identical for officers of all arms and services, but as to others there is much variation. It should be noted that this equipment is drawn from the unit to which assigned; accordingly, when the assignment is terminated, it must be returned. The officer assumes responsibility for the equipment by signing a receipt, and in case of its loss or damage he may be held responsible for its value. The table below is an example of the equipment thus obtainable by officers.

**EQUIPMENT OBTAINED BY ISSUE, DEPENDING ON T/O.**

| Item | Quantity | | Remarks |
|---|---|---|---|
| Mask, gas service | ea | 1 | |
| Ointment, protective | ea | 1 | |
| Compass, lensatic, w/case | ea | 1 | |
| Binoculars, M3 | ea | 1 | |
| Foot powder | ea | 1 | Expendable. |
| Packet, first-aid | ea | 1 | |
| Helmet, steel M1 | ea | 1 | |
| Pistol, automatic, cal. .45 (Rifle or carbine) | ea | 1 | For officers shown armed with the pistol. |
| Arctic clothing | set | — | See AR 615-40. |
| Bag, field, od, M1936, w/strap | ea | 1 | |
| Belt, pistol | ea | 1 | Per officer armed with pistol. |
| Blankets, wool | ea | 2 | |
| Cans, meat | ea | 1 | |
| Canteen, M1910 | ea | 1 | |
| Cover, canteen | ea | 1 | |
| Cup, M1910 | ea | 1 | |
| Fork | ea | 1 | |
| Knife | ea | 1 | |
| Pins, tent, shelter | ea | 5 | Per tent shelter half. |
| Pockets, web, magazine, double | ea | 1 | Per officer armed with pistol. |
| Poles, tent, shelter | | 1 | Per tent shelter half. |
| Pouches, first-aid, packet | ea | 1 | |
| Rolls, bedding, waterproofed | ea | 1 | |
| Spoons | ea | 1 | |
| Tags, identification | ea | 2 | |
| Tape for identification tags | yd | 1 | |
| Tents, shelter half | ea | 2 | |
| Bars, mosquito | ea | 1 | When authorized by CO. |
| Case, canvas, dispatch | ea | 1 | |
| Headnet, mosquito | ea | 1 | When directed by CO. |
| Tents, wall, small w/pins and poles | ea | 1 | Per field officer. |
| Whistle, thunderer | ea | 1 | |
| Flashlight | ea | 1 | |

Many purchases may be made from the Quartermaster to obtain important savings. Underwear, handkerchiefs, bath towels, sheets and pillow cases are especially good values. The service shoe is satisfactory for field service. The flannel shirt is suitable for wear by officers, especially on field duty. In the field, the trousers sold by the Quartermaster are suitable for wear by officers. The folding canvas buckets are of excellent quality and low in price. The field jacket may be obtained from the Quartermaster.

The Quartermaster General announced in May, 1942, a project by which officers' uniforms will be manufactured and sold at material savings to the purchaser. The uniforms are to be sold through Post Exchanges and through retail stores. These uniforms carry the label, "Regulation Army Officer's Uniform" and will be of the same material and color. Maximum prices at authorized outlets for the officer's overcoat (short) $29.75; the uniform (coat and matching trousers $44.50; trousers, drab (pink) $12; the service cap, $5, and the woolen garrison cap, $2.25.

This is an important advance in procurement of these expensive articles, which officers are required to obtain from their personal funds. The purchaser can feel secure that equipment purchased meets the specifications in every way and that the total cost is the minimum at which suitable garments may be obtained.

## UNIFORMS AND EQUIPMENT FOR FIELD SERVICE

An officer of the Army may be ordered to duty on field service at any time. He will need to have in his possession at the outset the equipment necessary for the able performance of his duties. He will wish to have the articles of uniform and equipment which will add to his comfort and convenience during the service.

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The difficulty of prompt replacement should be anticipated when ordered to duty distant from a source of supply.

Since all of these articles are subject to frequent moves, to the hazards of the weather, and the chance of loss, he will need strong, rugged containers to assure protection during movement and for use in camp or bivouac.

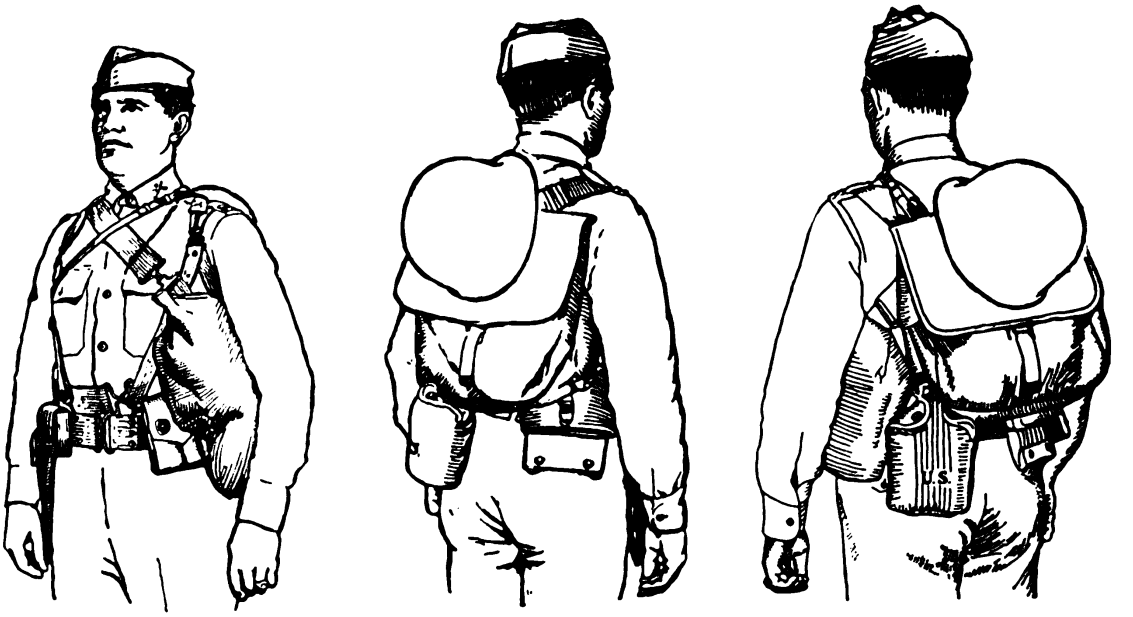


**Figure 25. Dismounted Officer's Field Equipment.**

The service uniform is prescribed for field duty and is entirely adequate for reasonable climatic rigors of heat or cold. The fit of uniforms should be loose and comfortable to permit wear for extremely long periods without excessive discomfort. When the contemplated service will be accompanied by extreme cold, the lighter weight woolens will be insufficient.

*Wool Field Jacket* (commonly called 'battle' dress to correspond with the British equivalent) is a single-breasted, fly-front jacket with lapel and convertible collar lined with matching color. It is made to fit easily over the chest and shoulders with sufficient fullness, and fits at the waist to conform to the figure. The back is plain with a seam in the middle. It is buttoned down the front with five buttons. The crossing of the lapels will be approximately 1¾ inches above the top button and the left lapel is equipped on the underside with a tab, having a buttonhole for closure at the neck. There is a waist band two inches wide of matching material which has an extension approximately 2¾ inches in length with rounded end and appropriate closure. The garment has side buckle strap adjustments using 1 inch, double bar, bronze-finish buckles.

It has two upper box-pleated patch pockets covered with shaped flaps with concealed buttonhole tabs. Upper lines of pockets are horizontal.

On each shoulder there is a loop of the same material as the jacket which is let in at the sleeve head seam and reaches to approximately 2 inches beneath the collar, buttoning at the upper end beneath the collar.

The cloth is the standard adopted wool O.D. serge cloth, dark shade.

All insignia are worn as on the service coat. This battle jacket is authorized for optional wear for all military personnel in lieu of the service coat. It will not be a required purchase and will not be issued within the continental United States at the present time.

The quantity of uniforms which should be taken into the field depends upon the ease of replacement and the promptness of laundry or dry-cleaning service. One coat or field jacket may be sufficient. Two pairs of trousers is the minimum, and three or four should provide for maximum needs. At least two wool shirts are necessary and four is a preferable number. The shirt should be sufficiently large to allow wearing a light sweater under the shirt. A greater quantity of articles

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comprising the cotton service uniform is needed. Spare uniform buttons, needles, and olive-drab thread should be included for minor repairs. A small tin of cleaning fluid is a useful accessory. Two pairs of suitable footgear should be taken into the field to provide for a change, for cleaning and drying out, or a spare pending repair or replacement and at least a half-dozen pairs of light weight wool socks is the minimum which should be carried in the field.

The following table lists the basic field equipment common to the greater portion of the service other than clothing worn on the person. The normal method of carrying the many items is stated. Other special equipment peculiar to certain arms and services or particular conditions is to be carried in the most practicable manner.

**Officer's and Warrant Officer's Field Equipment (Other than Clothing Worn on Person)**

| Article | Dismounted | Mounted on horse[1] | Mounted on vehicle |
|---|---|---|---|
| **Bag, cantle** | ..... | Attached to rear of saddle. | |
| **Bag, canvas, field** | Attached to suspenders, carried on back, or on right side slung by strap passing over left shoulder. | Attached to left rear of saddle. | Attached to suspenders, carried on back, or on right side slung by strap passing over left shoulder, or stowed in vehicle. |
| **Bags, feed and grain.** | ..... | On pommel under raincoat or overcoat. | |
| **Basin, canvas, folding.** | In bedding roll ..... | In bedding roll ..... | In bedding roll. |
| **Belt, pistol or revolver.** | Worn ..... | Worn ..... | Worn. |
| **Blanket, roll**[2] | ..... | **On cantle of saddle, or on led horse (when bedding roll is not authorized).** | **In/on vehicle (when bedding roll is not authorized).** |
| **Blanket, wool** | In bedding roll ..... | In bedding roll or in blanket roll. | In bedding roll or in blanket roll. |
| **Book, blank, memorandum.** | **In shirt pocket** ..... | **In shirt pocket** ..... | **In shirt pocket.** |
| **Boots or shoes** | In bedding roll ..... | In bedding roll ..... | In bedding roll. |
| **Breeches (or trousers).** | In bedding roll ..... | In bedding roll ..... | In bedding roll. |
| **Bucket, canvas, folding.** | In bedding roll ..... | In bedding roll ..... | In bedding roll. |
| **Canteen, cup and cover.** | On belt, left rear ..... | Off (right) cantle ring . | On belt, left rear. |
| **Cap, field** ..... | **Worn, or in bag, canvas, field.** | ..... | **Worn, or in bag, canvas, field.** |
| **Case, dispatch** ... | On right side, slung by a strap passing over left shoulder. | On right side, slung by a strap passing over left shoulder. | On right side, slung by a strap passing over left shoulder. |
| **Compass, lensatic or prismatic.** | Right front of belt ... | Right front of belt ... | Right front of belt. |
| **Compass, watch** ... | **In pocket** ..... | **In pocket** ..... | **In pocket.** |
| **Flashlight** ..... | In bag, canvas, field .. | In near (left) cantle bag. | In bag, canvas, field. |
| **Glasses, field** ..... | On right rear slung by strap passing over left shoulder. | On right rear slung by strap passing over left shoulder. | On right rear slung by strap passing over left shoulder. |
| **Gloves, any type** .. | **Worn; in bag, canvas, field, or in bedding roll.** | **Worn; or in near (left). cantle bag.** | **Worn; in bag, canvas, field; or in bedding roll.** |
| **Goggles** ..... | **Worn on helmet, or in right shirt pocket.** | ..... | **Worn, on helmet, or in right shirt pocket.** |
| **Handkerchief** .... | In bag, canvas, field, and in bedding roll. | In near (left) cantle bag | In bag, canvas, field, and in bedding roll. |
| **Hat, service** ..... | **Attached to bag, canvas, field.** | **Attached to near (left) cantle bag.** | **Attached to bag, canvas, field.** |
| **Helmet, steel** ..... | Attached to bag, canvas, field. | Attached to near (left) cantle bag. | Attached to bag, canvas, field. |
| **Holster, pistol** .... | On belt, opposite right hip. | On belt, opposite right hip. | On belt, opposite right hip. |
| **Horseshoes (2), and nails.** | ..... | In near (left) pommel pocket. | |
| **Housewife** ..... | **In bedding roll** ..... | **In off (right) cantle bag** | **In bedding roll.** |
| **Kit, grooming, complete.** | ..... | **In near (left) pommel pocket.** | |
| **Kit, mess, complete** | In bag, canvas, field .. | Near (left) cantle bag. | In bag, canvas, field. |
| **Laces, extra, any type.** | In bag, canvas, field .. | In off (right) cantle bag | In bag, canvas, field. |
| **Leggins** ..... | **In bedding roll** ..... | ..... | **In bedding roll.** |
| **Locker, trunk** ..... | **On cargo vehicle** ..... | **On cargo vehicle** ..... | **On cargo vehicle.** |
| **Mask, gas, horse** .. | ..... | Attached to halter under throat latch. | |

[1] Saddle load may be distributed between first and second mounts when second mount is available. [2] Entries in heavy type concern changes in an earlier regulation.

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| Article | Dismounted | Mounted on horse [1] | Mounted on vehicle |
|---|---|---|---|
| Mask, gas, service.. | Under left arm, slung by strap passing over right shoulder. | Under left arm, slung by strap passing over right shoulder. | Under left arm, slung by strap passing over right shoulder. |
| Message book ..... | In shirt pocket ..... | In shirt pocket ..... | In shirt pocket. |
| Ointment, protective. | In bag, canvas, field .. | In near (left) pommel pocket. | In bag, canvas, field. |
| Overcoat, long or short. | On bag, canvas, field .. | On pommel over feed bag. | On bag, canvas, field. |
| Pocket, magazine, web, double. | Left front of belt ..... | Left front of belt ..... | Left front of belt. |
| Pockets, pommel, pair. | ..... | One attached to each side of pommel. | |
| Pouch, first-aid, with packet. | On belt, right rear .... | On belt, right rear .... | On belt, right rear. |
| Raincoat ..... | In bag, canvas, field .. | On pommel, over feed bag. | In bag, canvas, field. |
| Rations ..... | In bag, canvas, field .. | Distributed between cantle bags to balance load. | In bag, canvas, field. |
| Roll, bedding ..... | On cargo vehicle (or on pack animal). | On cargo vehicle (or on pack animal). | On cargo vehicles. |
| Saddle soap and sponge. | ..... | In near (left) pommel pocket. | In carrier, gas mask. |
| Set, antidim ..... | In carrier, gas mask .. | In carrier, gas mask ... | In bag, canvas, field. |
| Set, toilet ..... | In bag, canvas, field .. | In off (right) pommel pocket. | In bedding roll. |
| Shirt ..... | In bedding roll ..... | In bedding roll ..... | In bedding roll. |
| Socks, pair ..... | In bedding roll ..... | In off (right) cantle bag | |
| Surcingle ..... | ..... | In near (left) pommel pocket. | |
| Suspenders, belt .. | Worn, attached to belt | Worn, attached to belt | Worn, attached to belt. |
| Tag, identification, with tape. | Around neck under shirt. | Around neck under shirt. | Around neck under shirt. |
| Tent, shelter (2 halves), complete. | In bedding roll ..... | In bedding roll or in blanket roll. | In bedding roll or in blanket roll. |
| Towel ..... | In bag, canvas, field, or in bedding roll. | In off (right) pommel pocket. | In bag, canvas, field, or in bedding roll. |
| Underclothing .... | In bedding roll ..... | In off (right) cantle bag | In bedding roll. |
| Whistle (chain, hooked to left shoulder loop buttonhole). | Left pocket, shirt or coat. | Left pocket, shirt or coat. | Left pocket, shirt or coat. |

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## UNIFORM AND EQUIPMENT ALLOWANCE

The act of December 4, 1942, provides that except as indicated below, an allowance of $250 for uniforms and equipment is authorized to be paid to the following personnel of the Army of the United States or any component thereof:

Any commissioned officer on active duty on April 3, 1939, or thereafter accepted for active duty in the grade of second lieutenant, first lieutenant, or captain, and entitled to the pay of the first, second, or third pay period on April 3, 1939, or at the time of such acceptance for active duty.

. Any person on active duty on April 3, 1939, or thereafter accepted for active duty in any temporary or permanent grade of warrant officer (including any person appointed flight officer), except that of chief warrant officer entitled to receive the base pay and allowances provided for officers of the fourth pay period.

*When Payable.* The uniform allowance is payable only to officers enumerated below now serving on active duty in the Army of the United States or who hereafter serve on active duty therein during the present war and for 6 months thereafter.

Officers on active duty in the Army of the United States or any component thereof on April 3, 1939, or thereafter accepted for active duty, in the grade of second lieutenant, first lieutenant, or captain, and who were entitled to the pay of the first, second, or third pay period on April 3, 1939, or at the time of acceptance of active duty, may be paid the allowance.

Any person on active duty in the Army of the United States or any component thereof on April 3, 1939, or thereafter accepted for active duty in any temporary or permanent grade of warrant officer or flight officer, with the exception of those mentioned in the next paragraph, may be paid the allowance.

*When Not Payable.* The uniform allowance is not payable in the following instances:

To officers accepted for active duty on or after June 1, 1942, who are entitled to receive the pay of the fourth pay period or above at the time of acceptance.

To a chief warrant officer entitled to receive the base pay and allowances of the fourth pay period at date of acceptance of active duty, or who was entitled to such pay on April 3, 1939.

To graduates of the United States Military Academy. The uniform allowance will not be paid more than once to any person. However, where former acts allowed payment in the amount of $150, the additional $100 is authorized.

Any uniform allowance paid previously under former acts will be deducted from the $250 and only the difference paid to persons entitled to the allowance.

Method of Payment. Claim of officers, warrant officers, and flight officers for uniform allowances will be submitted on War Department Form No. 336 and supported by the certificate shown in Figure 26 set forth below

---

I hereby certify that—

a. I was on active duty on April 3, 1939, in grade of ..... and entitled to the pay of the ..... pay period, or

b. I was accepted for active service on ..... in grade of ..... and was entitled to pay of the ..... pay period at that time, and

c. I was on active duty on the date of the passage of the act of December 4, 1942, and

d. I have previously received the amount of $.....* for uniform allowances under prior acts, and

e. I am not a graduate of the United States Military Academy.

.....
(Name)

.....
(Grade and organization)

---

* Insert amount, if any, previously received, or indicate "None"

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## RANK AND INSIGNIA

**Rank.** Uniforms and insignia of rank as you see them today date from the time of the Legions of Caesar, who by imperial order were required to dress and arm alike for the first time recorded in military history. Following Caesar, uniforms and rank have developed through the centuries to our present system.

As our Revolutionary Army had no uniforms and it was difficult to determine rank; General George Washington devised various badges so that officers and noncommissioned officers could be easily recognized. He himself wore a light blue ribbon; other generals used one of pink, and aides-de-camp green. Field officers wore red cockades in their hats, captains used yellow and subalterns, green. Sergeants carried red color stripes on their right shoulders, and corporals green. The privates were unadorned.

But color gradually was outmoded as a means of identifying rank and today metal insignia is used except on dress occasions.

In the American army, rank is divided into three groups:

1. Commissioned Officers.
2. Warrant Officers.
3. Noncommissioned Officers.

Officers hold their relative rank of leadership by appointment of the President, warrant officers have no commission but a warrant of appointment only, and noncommissioned officers are those appointed by commanding officers and have a certificate of rank only.

*Titles.* Officially, a lieutenant is introduced as "Lieutenant" and is so addressed. The adjectives "first" and "second" are used only in official communications.

In conversation and in nonofficial correspondence, a brigadier general, major general, lieutenant general, or general is referred to and addressed as "General." A lieutenant colonel, under like conditions is referred to and addressed as "Colonel."

Senior officers frequently address juniors as "Smith" or "Jones" but this does not give the junior the privilege of addressing the senior in any other way than by his proper title.

Officers of the same grade generally address one another by their last names. In social intercourse, a certain amount of familiarity is usual but the courtesy and respect for others which govern gentlemen at any polite gathering are expected to prevail.

Chaplains are officially addressed as "Chaplain" regardless of their grade.

Cadets of the United States Military Academy and Army Air Forces are officially addressed as "Mister," and as "Cadet" in written communications.

Warrant officers are addressed as "Mister."

Members of the Army Nurse Corps are addressed as "Nurse."

Noncommissioned officers are addressed by their titles, such as "Sergeant" or "Corporal" and privates as "Smith" or "Jones." Master, technical, and staff sergeants are all addressed as "Sergeant." In official communications, the full title of an enlisted man is used. In addressing a private or private, first class, whose name is not known, the term "soldier" is proper.

It should also be noted that any naval officer in command of a ship, regardless of size or class, while exercising such command, is addressed as "Captain."

In referring to or introducing captains in the Navy, it is customary to add after the name, "of the Navy," since the grade of captain in the Navy corresponds to the grade of colonel in the Army.

Insignia of rank in the United States Army is worn on the collar or shoulder, while Navy insignia is shown by sleeve stripes on the regular uniform. Naval officers wear rank on shoulder epaulets on the summer uniform and overcoat; yet insignia of both Army and Navy in field conditions will be found worn on shirt collars and garrison caps.

The corresponding grades of commissioned and noncommissioned officers in the Army and Navy of the United States and other major powers are shown in the following table.

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## Insignia, Army

| | United States | Great Britain | Royal Air Force | France | United States Soviet Russia | China | Italy | Germany | Japan |
|---|---|---|---|---|---|---|---|---|---|
| Grand Marshal | | | | | | | | | |
| General of the Army or equivalent rank (Marshal) |  |  |  |  |  | |  |  | |
| General |  |  |  |  |  |  |  |  |  |
| Lieutenant General |  |  |  |  |  |  |  |  |  |
| Major General |  |  |  |  |  |  |  |  |  |
| Brigadier General |  |  |  |  |  | |  |  | |
| Colonel |  |  |  |  |  |  |  |  |  |
| Lieutenant Colonel |  |  |  |  |  |  |  |  |  |
| Major |  |  |  |  |  |  |  |  |  |
| Captain |  |  |  |  |  |  |  |  |  |
| 1st Lieutenant |  |  |  |  |  |  |  |  |  |
| 2nd Lieutenant |  |  |  |  |  |  |  |  |  |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Chief Warrant Officer |  | | | |  | | | | |
| Warrant Officer (J. G.) |  | | | | | | | |  |
| Flight Officer |  | | | | | | | | |
| Master Sergeant |  |  |  | |  | |  |  |  |
| First Sergeant |  |  |  | |  | |  |  |  |
| Technical Sergeant |  | | | | | | |  | |
| Staff Sergeant |  |  |  | | | | |  | |
| Tec./3 |  |  * |  * | | | | | | |
| Sergeant |  |  |  | |  | |  |  |  |
| Tec./4 |  |  * |  * | | | | | | |
| Corporal |  |  |  | |  | |  |  |  |
| Tec. 5 |  |  * |  * | | | | | | |
| Private, First Class |  |  |  | |  | |  |  |  |
| Private | | | | | | |  |  | |

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## Insignia, Navy

| | United States | Great Britain | France | United States Soviet Russia | China Air Force | Italy | Germany | Japan |
|---|---|---|---|---|---|---|---|---|
| *Fleet Admiral* |  |  | |  | |  | | |
| *Admiral* |  |  |  |  |  |  |  |  |
| *Vice Admiral* |  |  |  |  |  |  |  |  |
| *Rear Admiral* |  |  |  |  |  |  |  |  |
| *Commodore* |  |  |  |  | |  |  | |
| *Captain* |  |  |  |  |  |  |  |  |
| *Commander* |  |  |  |  |  |  |  |  |
| *Lieutenant Commander* |  |  |  |  |  |  |  |  |
| *Lieutenant* |  |  |  |  |  |  |  |  |
| *Lieutenant (J. G.)* |  |  |  |  |  |  |  |  |
| *Ensign* |  | |  | |  |  |  |  |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Chief Warrant Officer* |  | | | | | |  |  |
| *Warrant Officer* |  | | | | | |  | |
| *Chief Petty Officer* |  | | | | |  |  |  |
| *1st Class Petty Officer* |  | | | | |  |  |  |
| *2nd Class Petty Officer* |  | | | | | |  |  |
| *3rd Class Petty Officer* |  | | | | | |  |  |
| *Fireman 1st Class* |  | | | | |  |  |  |
| *Seaman 1st Class* |  | | | | |  |  |  |
| *Fireman 2nd Class* |  | | | | | | | |
| *Seaman 2nd Class* |  | | | | |  |  |  |
| *Apprentice Seaman* |  | | | | |  | | |
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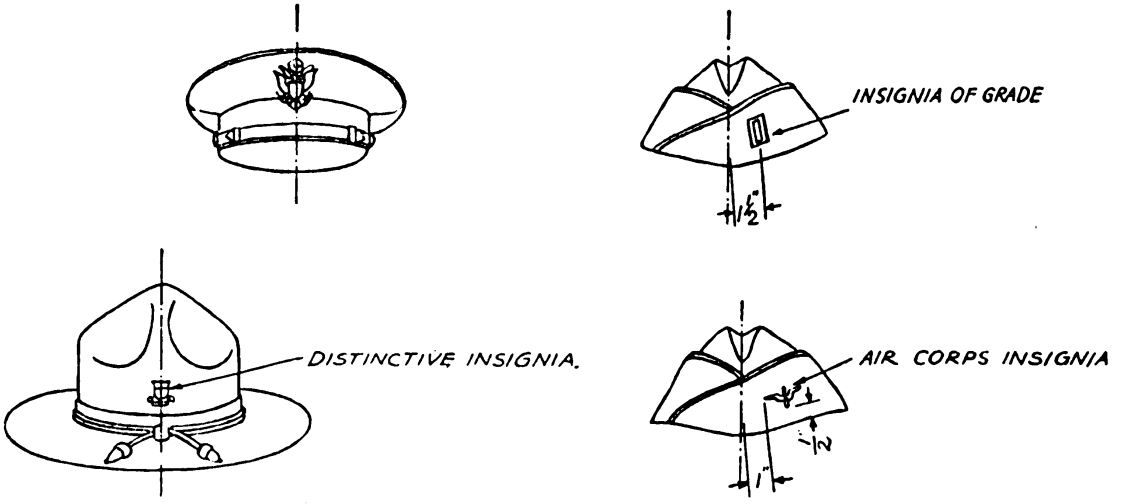
CORRESPONDING GRADES, ARMY AND NAVY

| *Army* | *Navy* |
|---|---|
| General of the Army | Fleet Admiral |
| General | Admiral |
| Lieutenant General | Vice Admiral |
| Major General | Rear Admiral |
| Brigadier General | Commodore |
| Colonel | Captain |
| Lieutenant Colonel | Commander |
| Major | Lieutenant Commander |
| Captain | Lieutenant, Senior Grade |
| First Lieutenant | Lieutenant, Junior Grade |
| Second Lieutenant | Ensign |

**Insignia.** The term insignia includes all the metallic or embroidered articles which are worn on the uniform that serve to identify the wearer as a member of the Army of the United States—his grade and arm of service, his organization in some instances, and other incidents of his service such as wound and war service chevrons.

Except as otherwise prescribed, insignia for wear upon uniform clothing will be made of gold or gold color material. Insignia of grade for shoulder loops may be embroidered. Metal insignia of grade may be knurled or smooth.

Officers who find the use of metallic insignia objectionable, especially under field conditions, should make use of embroidered cloth insignia which may be sewed permanently on all garments.




① Service Cap.
② Garrison Cap.
③ Service Cap.
④ Garrison Cap, Aviation Cadets.

**Figure 27. Insignia on Headgear.**

*Insignia on Headgear.* The service cap insignia which is the coat of arms of the United States will be attached so as to be centered on the welt.

Insignia of grade will be worn by officers, warrant officers, and flight officers on the garrison cap, on the left side, centered on the curtain, with center of the insignia 1½ inches from the front. Bars will be worn perpendicular to the bottom edge of the cap. Leaves will be worn with stem down. The eagle will be worn beak to the front. The star will be worn point upward. Additional stars will extend to the rear of the first star and be placed ⅝ inch apart. Miniature insignia of grade is authorized for general officers only, and when worn, additional stars will be placed ⅜ inch apart.

Insignia of grade will be worn by officers on the front of the steel helmet, and/or

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helmet liner, centered on the front of the helmet or liner, with center of the insignia 2½ inches from the lower edge of the helmet or liner. Insignia will be painted on the helmet or liner, and of standard size. Bars will be worn perpendicular to the bottom edge of the helmet or liner. Leaves will be worn with stem down. The eagle will be worn with beak to the wearer's right. The star will be worn point upward. The star will be centered on the front of the helmet or liner. The line of centers will be parallel to the base of the helmet or liner, and spaced ⅝ inch apart.

*Insignia on Collar or Lapel of Service Coat.* The insignia worn on the collar or lapel of the service coat is of metal, consisting, on each lapel, of the letters "U.S." and insignia indicating the arm, service, bureau, etc., to which the individual is assigned.

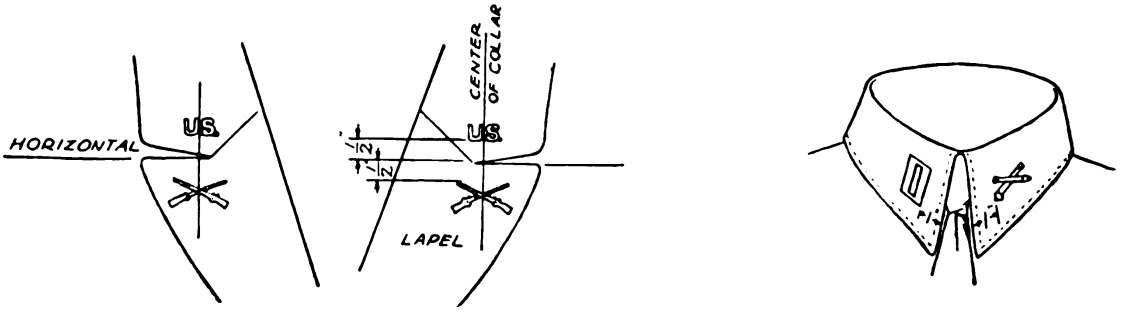



**Figure 28. Insignia Location.**

Officers wear the letters "U.S." on the collar (lapel) horizontally, the lower edge one-half inch above the horizontal line of the lapel, the center of the "U.S." at the center of the collar. The insignia of the arm or service is worn horizontally on the lapel, upper edge one-half inch below the horizontal line of lapel and centered below the "U.S." Warrant officers wear the insignia of warrant officers in lieu of the insignia of the arm of service.

*Insignia on Shirt.* When the shirt is worn without the service coat, metal insignia will be worn on the collar as follows:

*All Officers, Except General Officers.* On the right side, 1 inch from the end, the insignia of grade; on the left side, 1 inch from the end, metal insignia indicating arm, service, bureau, etc. Bars will be worn parallel with front edge of the collar. Leaves will be worn with stem down. The eagle will be worn beak to the front.

*General Officers of the Line.* On both sides, 1 inch from the end, the insignia of grade.

*Other General Officers.* On the right side, 1 inch from the end, the insignia of grade; on the left side, 1 inch from the end, metal insignia indicating arm, service, bureau, etc.

*Additional Stars.* Additional stars will extend to the rear of the first star and be placed ⅝ inch apart.

*Miniatures.* General officers are authorized to wear miniature insignia of grade. Additional miniature stars will be placed at a relatively smaller interval than indicated above.

*Warrant Officers.* On the right side, I inch from the end, the insignia of grade; on the left side, 1 inch from the end, the insignia of warrant officer. Bars will be worn parallel with the front edge of the collar.

*Insignia on Work Clothing.* Insignia of grade and arm or service will be worn on work clothing as prescribed for the shirt.

*Shoulder Loop Insignia.* On each shoulder loop of the service coat, the long overcoat, the short overcoat, the raincoat, the field jacket, and on each shoulder of the mackinaw, metal or embroidered insignia of grade will be worn as follows: Second lieutenants and first lieutenants, flight officers and warrant officers wear the bar in the middle of the loop parallel to and ⅝ inch from the sleeve end of loop. Captains place the bars in a similar manner with the lower bar parellel to and ⅝ inch from sleeve end of loop. Majors and lieutenant colonels place the leaves, point up, in middle of loop, stem of leaf ⅝ inch from sleeve end of loop. The eagle worn by a colonel is placed in the middle of the loop, head up, beak to

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the front, talons ⅝ inch from the sleeve end of loop. Brigadier generals place the star, point up, in the center of the loop. Major generals place the center of the two stars, points up, 2¼ inches apart, the stars equidistant from the sleeve end of the loop and the outer edge of the button. Lieutenant generals place the three stars, points up, equidistant each from the other. Generals place the four stars, points up, equidistant one from the other.

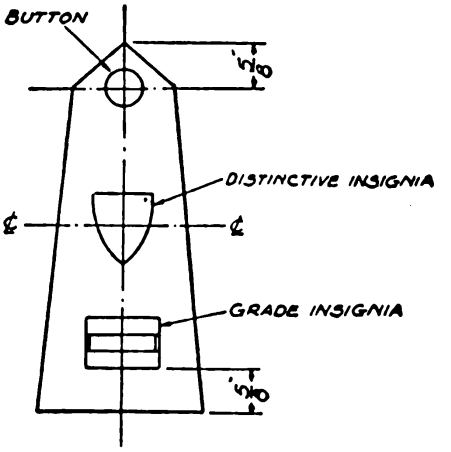



**Figure 29. Insignia Location.**

Commanding generals of independent forces outside the continental limits of the United States operating directly under the War Department are authorized to prescribe the method of wearing insignia. This provision enables certain overseas commanders to prescribe that insignia of grade may be entirely removed, or to be worn elsewhere than as stated above, when he considers such action to be desirable.

Warrant officers wear insignia as prescribed for Lieutenants.

## THE ORDNANCE INSIGNE

The insigne of the U. S. Army Ordnance Department—'the shell and flame'—is the oldest military device of the American Army. It was adopted by the Department in about 1833 and ever since that time has officially designated this branch. This insigne was used, prior to its adoption in the American Army, and still is used, by the British Grenadier Guards, Royal Engineers, and Royal Horse Artillery. After its adoption by the American Army, it was used by the Artillery, as well as by the Ordnance, until 1834 when the traditional crossed cannon was adopted by the Artillery.

The shell and flame (called also the 'flaming bomb' and 'bursting bomb') is designated the official insigne of the Ordnance Department by Army Regulations 260-10 and 620-35. In August of 1930 an Ordnance Order designated the 'shell and flame' as the Ordnance insigne. At present, the insigne is worn as a part of the official uniform for Ordnance officers on each lapel of the blouse.

The Ordnance seal (crossed cannon in circle with 'shell and flame' above) has appeared on all Ordnance publications, documents, and drawings since 1833. At the present time it is the official seal of the Ordnance Department and is known as the 'Ordnance escutcheon.'

*Wound and War Service Insignia.* All enlisted men of the Army, National Guard or Organized Reserves who have served honorably in the Federal service as enlisted men in the Army, Navy, or Marine Corps for a period of 3 years, continuously or otherwise will wear, as a mark of distinction the appropriate service stripe. This stripe will be worn on the outside half of the left sleeve of the service coat, placed at an angle of 45 degrees, the lower end being toward the inside seam of the sleeve and placed 4 inches from the end of the sleeve. For each additional period of 3 years another service stripe will be worn above and parallel to the first stripe, with ¼ inch space between stripes, the space being formed of the background.

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Wound chevrons denoting wounds received in the first World War and chevrons indicating oversea service in the first World War are worn by those officers, Army nurses, warrant officers and enlisted men whose record of service shows them to be entitled thereto.

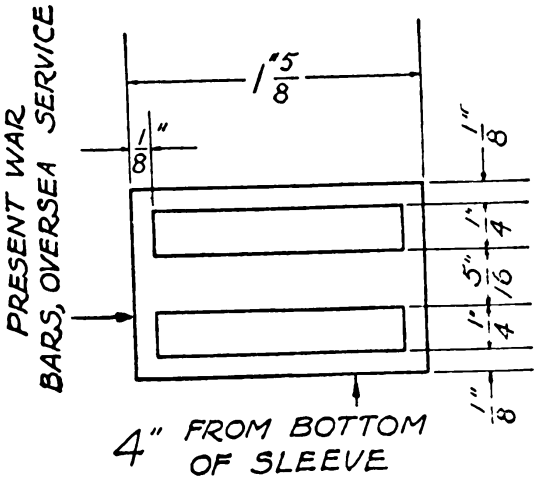



**Figure 30. Overseas Service Bar on Service Coat.**

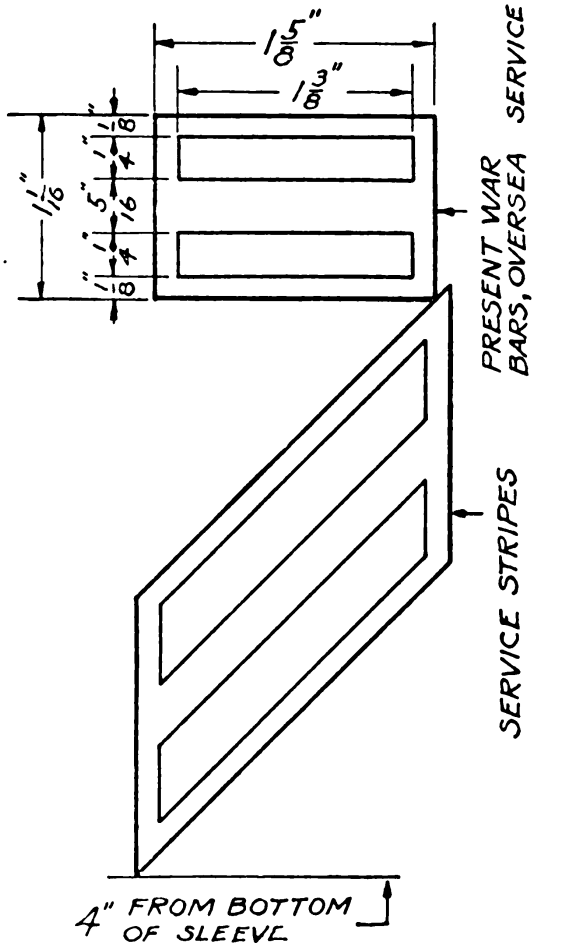



**Figure 31. Overseas Service Bar with Service Stripes on Service Coat.**

Wound and war service chevrons are worn on the service coat only, wound chevrons on the right sleeve and war service chevrons on the left sleeve. They are worn points down in the center of the outside half of the sleeve, the point of

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the lowest chevron to be 1 inch above the cuff braid for officers and 4 inches from the end of the sleeve for enlisted men, except that when war service chevrons are worn with service stripes, the war service chevrons will begin ½ inch above the uppermost service stripe. When more than one chevron is worn, the pace between chevrons will be 5/16 inch.

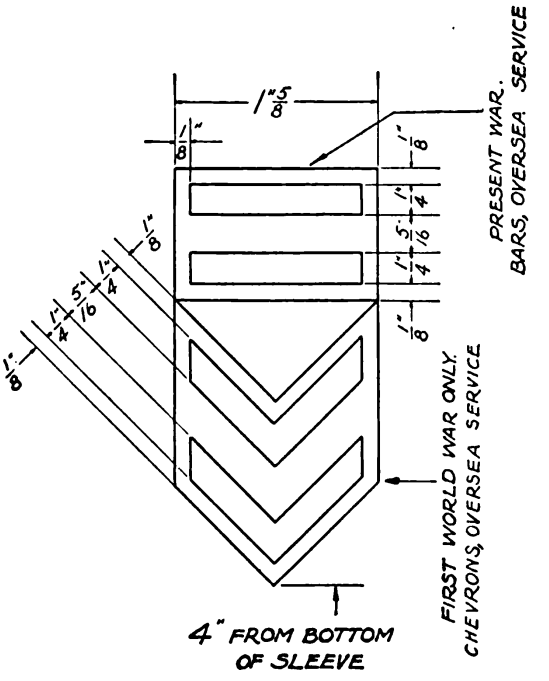



**Figure 32. Overseas Service Bar with Overseas Chevrons of World War I on Service Coat.**

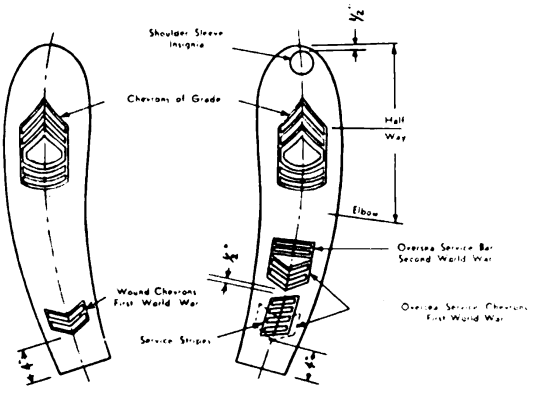



**Figure 33. Overseas Service Bar Worn with Overseas Chevrons and Wound Chevrons of World War I, and Grade Insignia and Service Stripes.**

A bar for overseas service during World War II is authorized for wear for each period of 6 months service as a member of the Army of the United States outside the continental limits of the United States from 7 December 1941 until a date 6 months subsequent to the termination of the present war.

The device consists of a horizontal bar ¼ inch in width and 1⅜ inches in length on a background forming a border ⅛ inch around the bar. The bar will be of gold color rayon, gold color cloth, gold lace, or gold bullion, the background will be of olive drab felt or of the same material and color as the garment on which it is worn. The device will be worn on the service coat (or the jacket, field, wool, in those theaters where the jacket is issued in lieu of the service coat), and on winter and summer shirts.

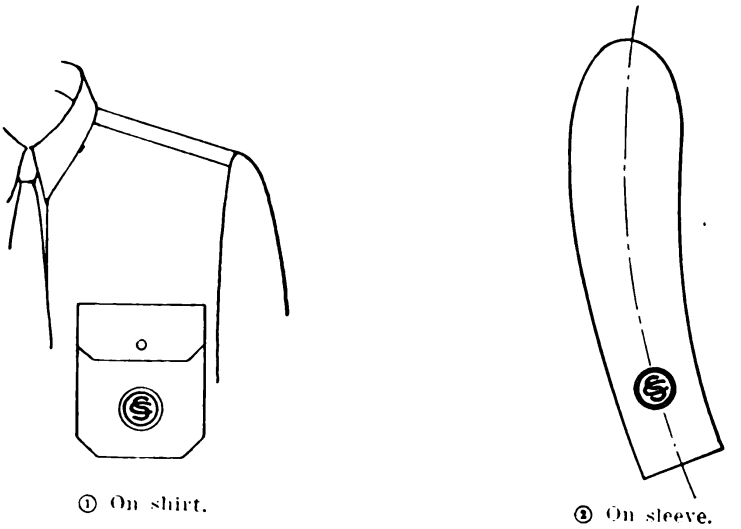
The overseas bar will be worn centered on the outside half and parallel to the end of the left sleeve of the garments with the lower edge of the bar 4 inches above

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the end of the sleeve. Additional bars will be worn parallel to and above the first bar with 5/16 inch space between bars, the space being formed of the background.

When the bar is worn on the service coat with service stripes or with chevrons indicating overseas service in the first World War, the overseas bar will be worn immediately above the uppermost stripe or chevron.

*Insignia, Officer Candidate School.* Warrant officers and enlisted men while students at officer candidate schools will wear the prescribed insignia centered on the outside of the right sleeve of the service coat, field jacket and overcoat with the lowest point 4 inches above the lower edge. When the shirt is worn without the coat, the insignia will be worn centered on the left pocket of the shirt.



① On shirt. ② On sleeve.

**Figure 34. OCS Insignia.**

*Insignia, Bomb Disposal Personnel.* Bomb disposal personnel insignia is authorized for wear by all bomb disposal personnel, during the period detailed or assigned to duty in connection with bomb disposal activities. The insignia will be worn centered on the left pocket of the shirt when worn without the coat and centered on the outside of the right sleeve of the service coat, field jacket and overcoat, with the lowest point 4 inches above the lower edge.

*Insignia, Shoulder Sleeve.* Shoulder sleeve insignia are authorized for wear by individuals assigned to units such as divisions, and higher units, and others, specifically authorized. It will be worn on the upper part of the outer half of the left sleeves of the service coat, overcoat, field jacket, and the shirt when worn as an outer garment, the top of the insignia to be one-half inch below the top of the shoulder-seam.

*Distinctive Insignia.* Subject to the approval of the War Department in each case, organizations classified in general as regiments, separate battalions, separate companies, or staff and faculty of various service schools, are authorized to adopt distinctive insignia or trimmings for wear by members thereof as a part of the uniform as a means of promoting *esprit de corps.*

This insignia will be worn by officers on the service coat centered on the shoulder loop, and on the service hat midway between band and eyelet. Distinctive insignia is not worn by officers on the service shirt or garrison caps.

## Generals of the Army and Fleet Admirals

In December 1944 Congress passed a bill authorizing the creation of five-star commanders of the above titles. Four such ranks were authorized for the Army and four for the Navy.

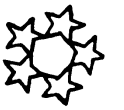


**Figure 34b. Army's Newest Insignia.**

The new Generals of the Army (there is a distinction in the title which keeps the rank a grade below that of the General of the Armies of the United States, the title now held by Gen. John J. Pershing) will hold equal rank with British Field Marshals. The Fleet Admirals will correspond to the similar rank in the British Navy.

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The insignia for the Generals of the Army is a five-star cluster in the shape of a pentagon, symbolizing the Army headquarters building in Washington (See fig. 34*b*).

## AWARDS, DECORATIONS, SERVICE MEDALS

Decorations are awarded in recognition of and as a reward for extraordinary, unusual, or outstanding acts or services. They are the visible evidence of such acts or services and are cherished accordingly by the recipients. Properly utilized, they are potent incentives to greater effort and instrumental in building and maintaining morale.

Awards of decorations are made by the War Department or by designated commanders acting for the President.

The following order of precedence is the authorized order for War Department decorations except that the Oak-Leaf Cluster is issued in lieu of an additional medal, and its precedence is that of the medal it represents:

a. Medal of Honor.
b. Distinguished-Service Cross.
c. Distinguished-Service Medal.
d. Legion of Merit.
e. Silver Star.
f. Distinguished-Flying Cross.
g. Soldiers Medal.
h. Bronze Star Medal.
i. Air Medal.
j. Purple Heart.
k. Medal for Merit (State, War, and Navy Departments).
l. Oak-Leaf Cluster.
m. Good Conduct Medal and Clasps.

Not more than one of the several decorations authorized by Federal law will be awarded for the same act of heroism or extraordinary achievement. Awards of decorations made by the War Department will be published in War Department General Orders and awards made by authorized commanders will be announced in general orders of their commands, three copies of such orders being forwarded immediately to The Adjutant General.

Awards of decorations and dates and places of presentation will be noted in the historical records of organizations, and in the service record of enlisted men, and for all others on W.D. A.G.O. Form No. 66-1 (Officer's and Warrant Officer's Qualification Card), in appropriate personnel files and efficiency records.

Enlisted men awarded the Medal of Honor, the Distinguished-Service Cross, the Distinguished-Service Medal, the Distinguished-Flying Cross, or the Soldiers Medal are entitled to additional pay at the rate of $2 per month from the date of the act of heroism or extraordinary achievement on which the award is based.

No decoration shall be awarded or presented to any individual whose entire service subsequent to the time he distinguished himself shall not have been honorable.

Recommendations for the award of decorations may be initiated by any officer. Recommendations must be based upon the statement of an eyewitness, preferably the recipients's immediate commander, and must contain a complete, yet concise, description of the services rendered in such detail that the appropriate commander or the War Department may determine whether the service was, in fact, sufficient to meet the requirements for the award. Particular attention should be given to the data supporting a recommendation. Written testimony will be in the form of certificates or affidavits. Each case will be submitted separately and forwarded through command channels with the views or recommendations, either favorable or unfavorable, of each commander through whom it passes.

In case an individual who distinguishes himself shall have died before the making of the award to which he may be entitled, the award may nevertheless be made and the decoration or other device presented to the first of the following representatives as shown by the records of the War Department: Widow (provided she has not remarried), eldest son, eldest daughter, father, mother, eldest brother, eldest sister, eldest grandchild.

*Medal of Honor.* This, the highest and most rarely awarded decoration con-

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ferred by the United States, was established by Act of Congress in 1862. It is awarded in the name of Congress to each person who, while an officer, non-commissioned officer or private of the Army, who in action involving actual conflict with an enemy, distinquishes himself conspicuously by gallantry and intrepidity at the risk of his life and above and beyond the call of duty.

Whenever practicable, the recipient of this decoration is ordered to Washington, and the presentation made by the President or by the Secretary of War or an officer designated by him.

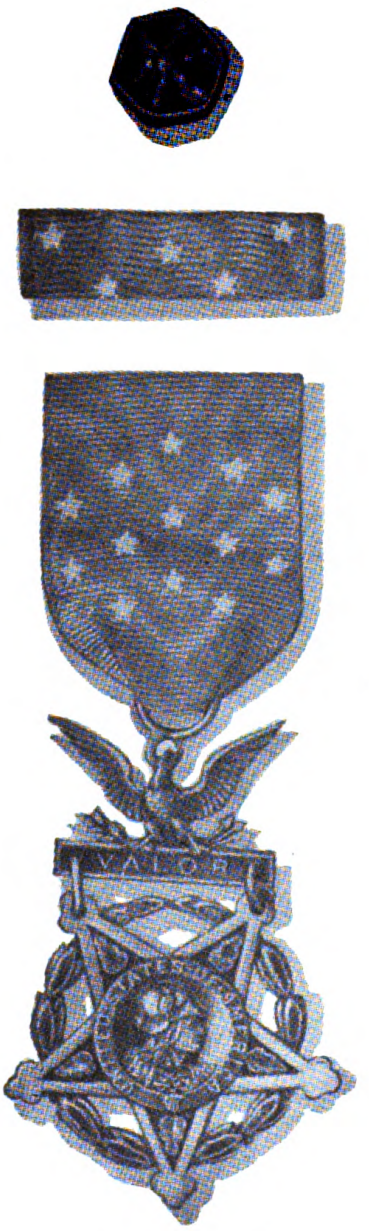


**Figure 35. Medal of Honor.**



**Figure 36. Distinguished Service Cross.**

*Distinguished Service Cross.* Instituted by Congress in 1918, the Distinguished Service Cross is awarded to persons who, while serving in any capacity with the Army, distinguish themselves by extraordinary heroism in connection with military operations against an armed enemy.

*Distinguished Service Medal.* The Distinguished Service Medal is awarded to persons who, while serving in any capacity with the Army, distinguished them-

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selves by exceptionally meritorious service to the Government in a duty of great responsibility.

This medal will be awarded to personnel of foreign nations only under exceptional circumstances.




**Figure 37. Distinguished Service Medal.**

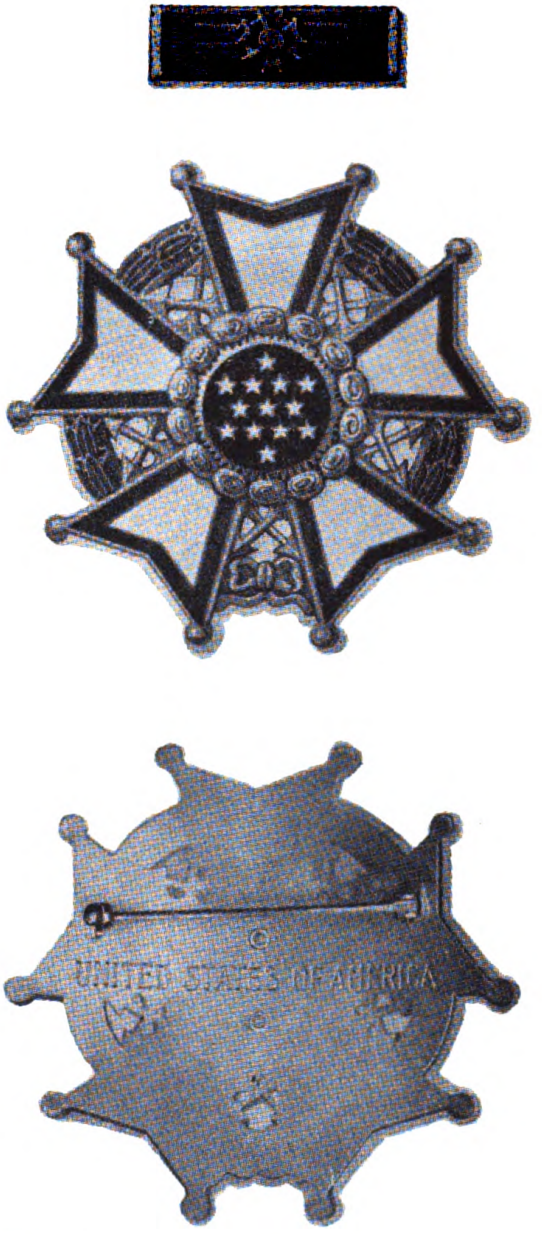


**Figure 38. Legion of Merit, Chief Commander.**

*Legion of Merit.* The Legion of Merit is awarded to members of the armed forces of the United States and of the Government of the Philippines who distinguish themselves by exceptionally meritorious conduct in the performance of outstanding services. It is also awarded to personnel of the armed forces of friendly foreign nations who distinguish themselves by exceptionally meritorious conduct in the performance of outstanding services.

*Silver Star.* The Silver Star was not instituted until 1935, but like the Distinguished Service Cross and Distinguished Service Medal is retroactively awarded. It is granted to persons serving in any capacity with the Army cited for gallantry in action which does not warrant the award of a Medal of Honor or the Distinguished Service Cross.

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*Distinguished Flying Cross.* The Distinguished Flying Cross is awarded to members of military, naval, and air forces who, while serving in any capacity with the Army Air Forces, distinguish themselves by heroism or extraordinary achievement while participating in aerial flight.

*Soldier's Medal.* Instituted in 1926, this decoration is awarded to military personnel of the Army of the United States and to members of the Navy, Marine Corps and foreign military personnel serving with the Army who have distinguished themselves by heroism not involving actual conflict with an enemy.



**Figure 39. Legion of Merit, Commander**



**Figure. 40. Legion of Merit.**
**Left, Officer. Right, Legionnaire.**

*Bronze Star Medal.* The Bronze Star Medal is awarded to any person who, while serving in any capacity in or with the Army of the United States, on or after 7 December 1941, distinguished himself by heroic or meritorious achievement or service not involving participation in aerial flight, in connection with military operations against an enemy of the United States. The required achievement or service for award of the Bronze Star is less than that required for award of the Silver Star or the Legion of Merit, but must nevertheless be accomplished with distinction.

*Air Medal.* Authorized by Executive Order of the President in 1942, the Air Medal is awarded to any person who, while serving in any capacity with the

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Army of the United States subsequent to September 8, 1939, distinguishes himself by meritorious achievement while participating in an aerial flight. This decoration is awarded in those cases where the act of meritorious service does not warrant the award of the Distinguished Flying Cross.

*Purple Heart.* The Purple Heart, established by General George Washington at Newburg, 7 August 1782, during the War of the Revolution and revived out of respect to his memory and military achievements by War Department General



**Figure 41. Silver Star.**



**Figure 42. Soldier's Medal.**

Orders, No. 3, 22 February 1932, is awarded to members of the armed forces of the United States and to civilians who are citizens of the United States serving with the Army, who are wounded in action against an enemy of the United States, or as direct result of an act of such enemy, provided such wound necessitates treatment by a medical officer. One award (the Purple Heart for the first wound, and Oak-Leaf Cluster thereafter) is authorized for each such wound, except that only one award is authorized for two or more wounds received at the same instant.



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**Figure 43. Distinguished Flying Cross.**

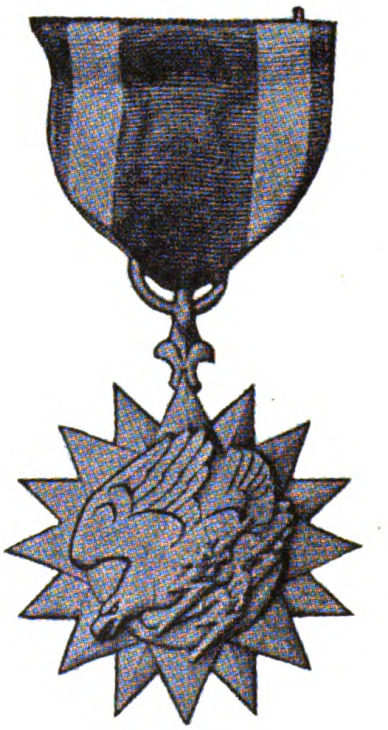


**Figure 44. Air Medal.**

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**Figure 45. Purple Heart.**




**Figure 46. The Medal for Merit.**

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*The Medal for Merit.* The Medal for Merit is the counterpart of the Legion of Merit, for award to civilians.

*Oak-Leaf Cluster.* None of the decorations authorized will be issued more than once to any one person, but for each succeeding deed, act, or achievement sufficient to justify an award, a bronze Oak-Leaf Cluster will be awarded in lieu thereof. Silver Oak-Leaf Clusters are authorized for wear on the appropriate decoration in lieu of bronze Oak-Leaf Clusters in the ratio of one to five.



**Figure 47. War Department General Staff Identification.**

*Service Medals.* Service Medals may be awarded to all military personnel who have taken part in the campaign or during the emergency period the medals represent, but they are earned by honorable service only.



**Figure 47A. Oak Leaf Cluster.**

*Campaign Medals for Current War.* The American, European-African-Middle Eastern, and Asiatic-Pacific campaign medals are authorized for award to members of the land and naval forces of the United States, including the Women's Army Corps, who during any period from December 7, 1941, inclusive, and a date 6 months subsequent to the termination of the present war, shall have served outside the continental limits of the United States in any of the respective areas indicated in the plate below.

*Good Conduct Medal.* This medal is authorized for award to those enlisted men of the Army of the United States, in all its components, who on or after August 27, 1940, honorably completed three years of active Federal military service or one year of continuous active Federal service since December 7, 1941 and who are recommended for the award by their commanding officers for exemplary behavior, efficiency, and fidelity. Each subsequent additional 3-year period (up to five), justifying the award of this medal, entitles the wearer to a bronze clasp in the form of a knot.

*Distinguished Unit Badge.* An innovation of the current war is the award of the Distinguished Unit Badge. When a unit has been awarded a citation streamer for distinguished achievement in battle, a distinguished unit badge identifying such citation shall be issued to all individuals assigned or attached as members of such unit to become a part of the uniform.

*Decorations and Service Medals, How Worn.* The Medal of Honor is worn pendant from the ribbon placed around the neck outside the shirt collar and inside the coat collar, the medal proper hanging over the necktie near the collar.

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The Distinguished Service Cross, Distinguished Service Medal, Legion of Merit, Silver Star, Distinguished Flying Cross, Soldier's Medal, Bronze Medal, Air Medal, Purple Heart, Good Conduct Medal, in that order of precedence followed by service medals in order of the date of the service performed, will be worn on the left breast in order from right to left of the wearer about 4 inches below the middle point of the top of the shoulder, in one or more lines. When more than one line is worn, the lines will overlap.

The Distinguished Unit Badge will be worn on the right breast centered immediately above the pocket.

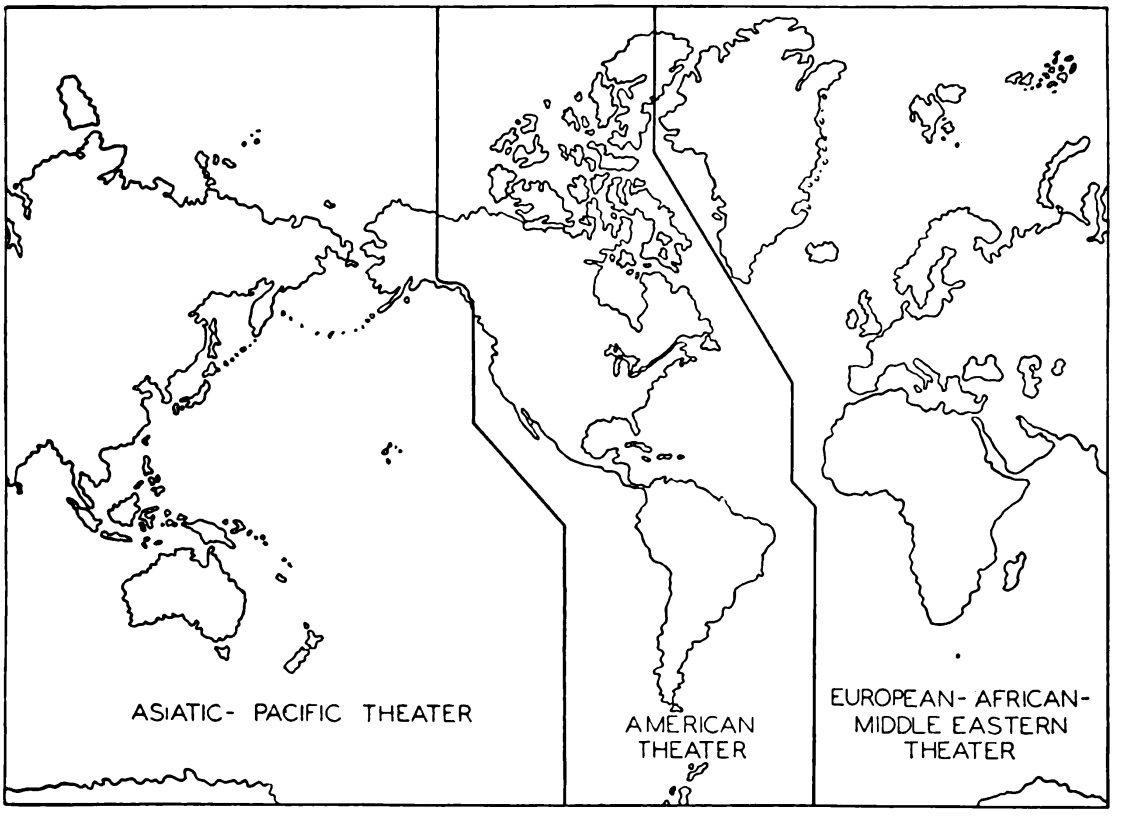



**Figure 48. Outline Map Showing Theater Boundaries.**

*Foreign Decoration, Service Medals, Etc.* A person who has received a decora- from the government of a foreign country will wear the decoration as a courtesy to that country when attending any public function in that country or when attending any formal function in any country, in the house of, or in honor of, a public official or other distinguished citizen or subject of the country whose decoration he possesses, and on such occasions the foreign decoration, if a breast decoration, will take precedence over all other foreign breast decorations. If the foreign decoration is a neck decoration, it will be worn above all other foreign neck decorations, but below the Medal of Honor. Except as prescribed above, the wearing of foreign decorations or service medals and the corresponding service ribbons is optional. A foreign decoration or foreign service medal will not be worn alone; at least one American decoration or American service medal must be worn with a foreign award.

*Service Ribbons, Bronze Stars, Miniatures, Lapel Buttons, and Lapel Ribbons.* American service ribbons are authorized to be worn for decorations and service medals issued by the War Department. These service ribbons may be worn on the service coat and the service shirt but will not be worn on the overcoat nor on civilian clothes.

Service ribbons may be either sewed in place or attached by means of a bar. Beginning with the Medal of Honor ribbon, service ribbons will be worn in the same order and position as prescribed for the decorations and service medals. When decorations or medals are worn, the service ribbons will be removed.

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Bronze service stars are worn on the service ribbons of campaign medals for the current war to indicate credit for battle participation, a star for each battle or campaign for which credit is awarded. Silver service stars are authorized in lieu of bronze service stars in the ratio of one to five, and will be placed to the right of bronze service stars.

Miniatures of the decorations, service medals, and ribbons are worn attached to a bar or chain on the left lapel of evening clothes, military and civilian, only.

Lapel buttons and lapel ribbons are optional for wear with civilian clothing. Those representing decorations and service medals may be worn only by those to whom the decorations and medals to which they correspond shall have been awarded.

It should go without saying that individuals who have not been officially authorized to wear a decoration, service ribbon, or badge, cannot wear them. Occasionally, however, there are indications that individuals wear these devices without benefit of official authorization. When not equipped for combat, decorations, service medals and badges may be worn on the service coat or shirt but never on the overcoat or with civilian clothing. Officers suspended from either rank or command, and enlisted men serving sentence of confinement, are prohibited from wearing decorations or medals or substitutes therefor. Next of kin are not authorized to wear decorations, service medals, badges, service ribbons, insignia, or lapel buttons.

*Presentation of Decoration.* A review is ordinarily held on occasions of the presentation of decorations or of the decoration of the colors. After the reviewing officer has passed around the line and resumed his post, the commanding officer of the troops from his own post commands (or orders, or signals): 1. PERSONS TO BE DECORATED AND ALL COLORS, CENTER, 2. MARCH. At the command MARCH, persons to be decorated and all colors move by the most direct route and take post as follows:

(1) The persons to be decorated in a single rank in the center of the command and 10 paces in front of the line of company commanders according to the rank of the decorations to be conferred. Those receiving similar awards take position in accordance with their military rank.

(2) Colors to be decorated in single rank 5 paces in front of the center of the line of persons to be decorated in groups according to rank of decoration to be bestowed, highest ranking decoration on the right.

(3) All other colors with color guards in single rank 5 paces in rear of the center of the persons to be decorated and in the same relative position as their location in the command.

(4) The commander of troops takes post 5 paces in front of the center of the leading element. He then commands: 1. FORWARD, 2. MARCH. At the command MARCH, the commanding officer, the persons to be decorated, and the colors advance, with the band playing. The commander of troops marches on the reviewing officer. In all ranks the guide is center. The detachment is halted by the commander of troops when he has reached a point 10 paces from the reviewing officer by the commands: 1. DETACHMENT, 2. HALT. He then salutes the reviewing officer and reports, "Sir, the persons (colors) to be decorated are present." The reviewing officer returns the salute and directs that the command be presented. The commander of troops returns to his post in front of the center of his command by moving around the right flank of the persons or colors to be decorated and then directly to his post. On reaching his post he commands: PRESENT ARMS; he faces about, and salutes. The band then plays the National Anthem. If only field music is present, it sounds To the Color. On completion of the music the commanding officer of the troops brings the command to order. If the formation consists of more than one battalion, he directs AT EASE. The persons to be decorated salute and terminate the salute at the commands of PRESENT ARMS and ORDER ARMS given by the commander of troops.

(5) A designated staff officer then reads the order announcing the awards. After the reading of the order, the reviewing officer, accompanied if necessary by his staff or designated members thereof, advances to the colors and to the line of persons to be decorated, fastens the appropriate streamer to the staff of the color, and pins the decoration awarded on the left breast of each person. He then

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directs the commanding officer of the troops to march the command in review and resumes his post. The persons decorated form line on the left of the reviewing officer, or as otherwise directed, and the colors return to their posts by the most direct route.

## MILITARY MEDICINE

Military medicine includes the principles carried out in furnishing medical service to the troops. Each unit commander is responsible that his troops receive proper medical service and is concurrently responsible for keeping his men in good physical condition and fit for any of the rigors of combat. These responsibilities must be properly discharged or the unit's combat mission will suffer. Sick men cannot fight.

To further their physical condition and freedom from disease, men must be taught field sanitation and the commander must see that its principles are carried out after it has been taught. First aid must also be taught to all men; it may be the means of their saving their own or their buddy's life at some future date. For the units it may mean a man restored to duty instead of a man lost and the necessity of procuring and training a replacement.

Commanders are confronted by another problem which could seriously endanger the unit's combat efficiency. Mental breakdowns not only mean the loss of manpower of those concerned, but the results are often reflected in the work and mental attitudes of the other men. He should be on the lookout for symptoms of approaching mental sickness among his men so that prompt care can be taken. No good purpose is served by allowing a man to go on until the breakdown finally comes.

**Employment of Attached Medical Personnel.** In discharging the duties involving military medicine and its principles, the commander may be hampered by lack of information or lack of experience. The attached medical personnel will serve a very useful function in this respect if they are properly used. Full advantage of their knowledge should be taken and they should be used as technical advisors wherever possible. An example of this use is in the selection of bivouac sites. Many times a medical officer could warn against the selection of an unhealthy area if he were given the opportunity to do so. Often a commander discovers that his unit is in a poor site only when his men begin to get sick.

It must also be remembered that the Medical Department has no command control of unit medical detachments but exercises only technical supervision over their medical operations and training. The commander of the parent unit is responsible for promoting the general efficiency and usefulness of his medical detachment and shaping its policies so as to obtain the best medical service and fullest cooperation with the rest of the unit.

**Dispensary Service.** Operation of dispensaries and aid stations is another function of the detachment. Through these dispensaries and aid stations the sick and injured are promptly treated and returned to duty or evacuated to other medical installations.

The dispensary will carry out routine treatment of persons whose illnesses or injuries are slight, that is, of a degree that will not incapacitate them for duty. It will hold sick call at hours prescribed by the unit commander, usually upon recommendations of the unit surgeon, and such persons will be treated at that time. Also reporting to the dispensary either on sick call or at other times when warranted will be men with new disabilities which require treatment. These new cases will be evacuated or returned to duty at the discretion of the medical officer. Those requiring further treatment but otherwise fit for duty will be treated at subsequent sick calls while remaining on a duty status.

The dental clinic will operate as part of the dispensary and will conduct periodic dental surveys in addition to doing emergency or preventive dental work. These functions are usually concurrent, the survey serving to uncover the work needed, while the dental officer plans and schedules his work accordingly taking the most urgent cases first and the others as time permits.

A prophylaxis station is usually provided as soon as the dispensary is ready for any other operations. It may be a part of the regular dispensary or separated as the situation requires. It should be ready for operation as required. If the

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regular pro station is closed the detachment dispensary should be equipped to carry on.

Operations of the dispensary are not confined to sick call. Since a man usually has no control over when he becomes ill or injured, the dispensary may expect business at any hour. The many problems arising in connection with sick personnel and the handling of the various abuses connected with sick calls such as "riding the sick book," should be worked out with understanding cooperation between the commanding officer and the unit surgeon. The solutions should be consistent with local conditions and state of training. There should also be a plan for encouraging a sick man to go on sick call promptly since postponing or neglecting the visit might allow a minor complaint to develop into a serious one.

Administration of innoculations and vaccinations as prescribed in the table below is done by the medical detachment. Each unit commander is responsible that the men of this command are so treated by the unit medical officer.

**Table 1.**

| Type of shot | Initial series of three shots | Stimulating booster shot; following the initial three shots |
|---|---|---|
| Typhus Shot | 1 per week | 3 to 6 months |
| Tetanus Shot | 1 per month | 1 per year |
| Typhoid Shot | 1 per week | 1 per year |

Yellow Fever Shot—1 per year if in Yellow Fever area.
Small Pox Vaccination—1 per year overseas, 1 per 3 years in the States.

**Inspections.** Other functions of the medical detachment include making periodic inspections of the command, such as physical inspections of food handlers and men and of other conditions which might affect the health of the command. In this latter category would be included the establishment and maintenance of regulations in regard to bivouac or camp sanitation. Again this is part of the command responsibility previously mentioned and the medical personnel will function as directed by the commander of the parent unit. Close cooperation of both commander and unit surgeon is essential in achieving maximum efficiency and harmony in carrying out these practices.

The inspection's ultimate objective is the raising of the unit's standard of health by disclosing conditions that might be detrimental and which should be corrected. Trying to place the blame on someone, or constant insistence upon things impossible of fulfillment will do nothing but cause resentment and destroy all cooperation. Where possible, remedies should be indicated for any condition needing correction and medical detachment should be ready to lend its fullest support in helping to carry out the corrective actions they have suggested. A full discussion of these duties will be found under mess management in the chapter on Administration, Chapter 2, Vol. I.

**Troop Training.** The training of troops in first aid and in field sanitation is a command responsibility and the instruction should be carried out by the personnel of the parent unit. The commander, however should call upon his medical detachment for assistance and technical guidance in this phase of training. The extent to which the medical detachment would lend its aid would depend entirely upon the policies and personalities of the units involved and especially upon how busy the medical detachment happened to be at any given time.

**Respiratory Diseases.** Respiratory diseases are those known to be or strongly suspected of being transmitted by discharges from the respiratory tract. They account for the greatest percentage of men on sick call, and are easily and rapidly spread, sometimes assuming epidemic proportions. Some of the most common respiratory diseases are: measles, mumps, diphtheria, scarlet fever, influenza, pneumonia, epidemic meningitis, smallpox, poliomelitis, whooping cough, tonsilitis, tuberculosis.

*Control Measures of Respiratory Diseases.* Control is difficult because of the easy transmission of these diseases, rather general susceptibility, and the scarcity of specific protective measures. The diseases may be transmitted by the air itself or by hands, food, or mess equipment upon which the germs have settled. Vaccination is a positive and specific control measure in the case of small pox only.

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Although vaccines do exist for a few other diseases they have limited value as far as the army is concerned. Quarantine is effective only in the control of some of the diseases of this group.

The routine preventive measures are concerned with barracks and living conditions. Head to foot sleeping in the barracks minimizes the contact of each man with his neighbor's recently expired air or nasal spray. During the winter when these diseases are most prevalent, cubicles should be constructed by placing shelter halves or sheets between the various bunks. Proper ventilation is essential; and, if necessary, frequent inspections should be made to prevent closing of windows. The room should not feel hot or stuffy upon entering from the outside air. Care must also be taken that barracks or squad rooms are not overcrowded.

High standards of cleanliness should be maintained. Spitting on the floor, dry sweeping of floors, careless coughing and sneezing, and use of common drinking cups or towels must be prohibited. Bedding should be aired frequently. Any measure which will raise the standard of cleanliness should be undertaken. Although it may not be a specific remedy against a particular disease, it will contribute to raising health standards in general and will cut down the incidence of respiratory diseases indirectly.

Any food handler who becomes sick should be relieved immediately. Other men should be isolated if possible, preferably hospitalized. The presence of several cases or threat of an epidemic should call for mandatory hospitalization of the sick men and frequent medical inspections of the rest of the men. Quarantine and restriction of training activities will be warranted under extreme circumstances. The medical officer may attempt to separate the susceptible from the non-susceptible and he will most certainly isolate any men believed to be disease carriers, although they are otherwise seemingly healthy.

## MALARIA

Malaria is probably one of the most important diseases that a troop commander will encounter. History is full of examples of how malaria changed the course of a particular campaign. The building of the Panama Canal was not possible until malaria was brought under control. It was malaria, more than any other one thing, that brought about the surrender at Bataan. Any operation taking place in region where malaria is prevalent, must give malaria control primary consideration in all planning.

The symptoms of malaria are chills, fever, severe headaches, and nausea. The victim is very sick and depressed, and from a military point of view, the disease is completely incapacitating. Since the above symptoms are common to many other diseases, positive diagnosis is difficult. If malaria, however, is prevalent in the vincinity, that fact will assist in a positive diagnosis.

Treatment is by "suppressive therapy," whereby quinine or atabrine is used to reduce or entirely suppress the effects and symptoms while the patient is allowed to recover from the disease. This treatment is very important in spite of the fact that the disease is actually allowed to run its course, because the disease is often fatal otherwise if untreated. Suppressive therapy renders the disease harmless and removes most of the symptoms without actually curing it at once. Atabrine and quinine will be further discussed in later paragraphs.

*Preventive Measures.* Malaria is transmitted by the bite of the anopheles and other types of mosquito. The preventive measures to be taken should be aimed at two things. Killing the mosquito is one angle of approach to the problem, and the prevention of his bite constitutes the other side of this problem. The army's malaria control plan is based on these two fundamentals, both of which combined with chemical prophylaxis (quinine and atabrine) make up an efficient and comprehensive program.

*Control of Mosquito Breeding Places.* The favorite breeding place of mosquitoes is in swampy places or where stagnant water collects. Removal of stagnant water will thus remove the breeding places. Swamps should therefore be drained or filled in if practicable. This would be a permanent solution in many places; but the energy and manpower involved might also be prohibitive, and so only a short-term anti-malaria program can be adopted and carried out.

Another source of stagnant water is that which collects in old tin cans, small

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puddles, ruts, etc. A thorough check upon an area to remove refuse heaps and to dry up such puddles will cut down the mosquito's breeding places still further. Old tin cans should be cut up and flattened to avoid the accumulation of stagnant water.

A less permanent but very effective means of preventing mosquito breeding consists of placing an oil film over the stagnant water or swamps in the vicinity. The mosquito lays its eggs on the surface of the water and in three or four days they hatch into larvae. The larvae must breathe and will remain near or come to the surface. This oil film kills them, mostly by toxic, action after being drawn into the tracheal tubes. Commercial paris green, mixed with inert dust in 1 to 99 part mixture, is also very effective for use in treating the surfaces of stagnant water. Also used are certain other mixtures containing phenol as the active ingredient.

Although this surface treatment of water may seem like a tedious and hopeless method, it must be remembered that the suppression of one generation of malaria carrying mosquitos will stop any threatening epidemic. Isolation and screening of all present malaria cases must be combined with this, but if a control program can be made effective for a period of at least a month the majority of adult mosquitoes will disappear and with them will go the threat of epidemic.

Preventing the bite of the mosquito is carried out by keeping the mosquito away from places the soldiers inhabit. The best means of keeping the mosquito away from the soldiers is to choose bivouacs away from swampy areas or mosquito-infested spots. Since military operations must go on without regard to this, screening or individual measures are usually the means employed. A mesh of 18 wires per inch will exclude all types. In a tent camp or in the field, screening may often be accomplished by the use of salvage mosquito bars or cloth mosquito netting.

Killing the adult mosquito is a much more difficult task, but can be carried out in a few places by means of swatting or spraying with pyrethrum spray. A new "bomb" consisting of freon and pyrethrum has been recently introduced and is available for issue. The freon affords excellent vaporization for the pyrethrum and a few seconds of spraying will kill all the insects in a space the size of a pyramidal tent. The spray is harmless to man. In normal practice this treatment will last about a week. Any control method directed at killing the adult mosquito is usually combined with screening or some other method of excluding them from buildings or installations used by troops.

Due to lack of facilities most tent camps or units in the field will employ screening to a very limited extent if at all. Prevention of bites then becomes an individual matter and use is then made of individual mosquito bars for sleeping, and of headnets, gloves, and leggings for duty hours. Also used are various repellents to be rubbed on the exposed skin to discourage the mosquito from biting. A common repellent in use is oil of citronella in a white petrolatum base. A present item of issue is a clear, colorless liquid, manufactured by the Union Carbon and Carbide Company, which serves the same function.

The protection afforded by individual measures is largely a question of discipline. Troops do not like sleeping under mosquito bars and will not use them properly unless suitable measure of training and enforcement are taken by the unit commanders. The same could be said for the wearing of headnets and gloves or the use of repellents.

*Atabrine and Quinine.* The last part of the Army's malaria program is chemical prophylaxis. The use of quinine and atabrine in the treatment of malaria has been mentioned and its employment has been described as "suppressive therapy." In field application, the soldiers on duty in a malaria area are given quinine or atabrine before they enter that area. If all individual or collective means of preventing mosquito bites fail and a soldier does get a stray bite or two, the atabrine or quinine has already built up a resistance to the disease, and the man does not develop an active case of malaria requiring hospitalization. As stated previously, it is believed that the use of atabrine or quinine does not prevent malaria, but it does prevent the man from becoming ill. The soldier often has what might be termed a "latent" or "suppressed" case of malaria. He shows no symptoms and loses no time from duty.

Atabrine, a synthetic drug, is the most common drug now used, since the

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quinine-producing areas fell into enemy hands. It is given to all men except those who are allergic to it. The dosage will vary with the instructions given for any particular theater but may consist of a ½ grain pill every day in extreme malaria areas. It is taken with one of the meals, preferably on a full stomach. Its effectiveness is built up over a period of time. Troops must start taking the pills two or three weeks prior to the onset of the malaria season, since one pill does not automatically confer an immunity to malaria. When the troops stop taking atabrine it is usually discontinued for 1/3 of the troops about every 10 days, taking almost a month of tapering off. Many "suppressed" malaria cases break out when the atabrine is discontinued; and by having the troops stop taking it in this manner, the new cases will be spread out over the period of a month and thus will not overtax existing hospital facilities.

Quinine is given only in a few cases. If a man is allergic to atabrine he may be given quinine, but since it is scarce and is also needed in treatment of active malaria cases the Medical Corps tries to avoid the use of quinine wherever possible.

It has been mentioned that individual protective measures depends on the maintenance of discipline for their effectiveness. Nowhere is this more true than in the taking of atabrine. Men must not only know the necessity of atabrine, but unit commanders must see that some system is set up to be sure that they do take their pills. A suggested plan is to distribute the pills at meal times, perhaps using a roster, and to see that the man takes his pill at that time before he falls out to eat. Atabrine will not agree with some of the men, especially at first. It may cause nausea or diarrhea among some and this will influence those and others to avoid taking their pills if they can. There is also the problem of the man who forgets about his pill or who loses it between the time he receives it as he passes through the chow line and the time he finishes his meal, when he should be ready to take his atabrine. Making the pills available will not be enough. Command responsibility must include enforcement of all phases of the anti-malaria program to make it effective, and this includes devising methods of securing compliance with that program in all details.

## FIRST AID

Reports from the combat zone have shown that many men in the heat of battle were unable to give effective first aid. Being confronted with a problem requiring immediate and effective action they were unable to recall exactly what they have been taught to do. In many cases they did nothing.

Training for enlisted men should stress a few essentials that all men can be trained to do well, rather than attempt to teach many things in a superficial manner. If too many things are taught the average soldier will be thoroughly confused by much information and complicated medical terminology. When the time comes to apply such training in an emergency a confused jumble of facts will serve only to produce panic rather than effective action. When wounded or in the heat of battle a man is quite likely to forget all that he has not learned well. If instruction is reduced to simplest terms and confined to a few important points the man is more likely to react favorably in an emergency and to apply his knowledge effectively.

Training in self-aid should be stressed. In most instances it will be necessary for the man to give himself first aid. If there is good combat discipline it will mean that he is unlikely to receive first aid from his companions in battle. Even in non-combat situations the soldier may well find himself alone and badly hurt. Remember that if he is badly hurt he will tend to become panic-striken and confused and will be able to do very few things for himself. His training in self-aid must consist of a few simple and essential things that he will be able to do and do well under the worst conditions. If his training is good it will serve to calm his fears and repress his tendencies to panic.

First aid training may be reduced to five essential items which cover the majority of injuries. Stressing the important points in each of these groups will give a man a brief and concise background which will cover the greatest portion of possible emergency situations. Training should cover the following:

*Bleeding.* Types of bleeding. How to recognize and control each, use of simple tourniquets, precautions to be observed. Failure to control bleeding may result in death.

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*Shock.* Symptoms, mild and severe; preventive measures.
Severe shock may cause death.

*Burns.* Treatment (including chemical burns); field expedients; what not to do. Severe burns may cause death and improper treatment of burns may have serious complications.

*Fractures.* Recognition. Simple splinting; field expedients; precautions in case of compound fractures; what not to do. Improper treatment may have very serious consequences.

*Self-Aid and use of Sulfa Drugs.* Use of wound pills and wound powder; precautions and special instructions; when not to use; important precautions on dosage.

All the above matters should be taught to every soldier as a required minimum, and he should be able to carry out these measures almost automatically. Instruction should be reduced to its simplest terms and made as forceful, direct, and vivid as possible. The soldier's application of these essentials should be thoroughly tested.

Additional training should be given to NCO's and to those who may show special aptitudes. This should include additional information on the subjects just covered and a knowledge of all other items relating to first aid. Essential technical information on the above items and other desirable training subjects will be listed in the following pages.

First aid consists of the temporary emergency treatment given in a case of sudden illness or accident before the services of a medical officer can be secured. Very often the only first aid care that is necessary is to prevent further injury to the patient by well-meaning but ignorant meddlers.

**General Directions.** The following precautions apply to the application of first aid in any situation.

Do not move the patient until the extent of the injury is determined. Keep the patient lying in a comfortable position, with the head level with the body. Many types of injuries require skilled preparation before they can be safely transported to a hospital. Hurried transportation by unskilled persons may aggravate injuries or even prove fatal to the patient.

Keep cool; do not handle the patient hurriedly or roughly; keep bystanders away from the injured person.

Keep the patient warm; be sure he is covered and is not being chilled from contact with the ground.

Do not give liquids to an unconscious patient; they may enter the windpipe and strangle him.

Do not try to do too much. If the injury appears to be a serious one, bring medical assistance to the patient rather than transporting the patient to a hospital.

**Bleeding.** *Varieties.* There are three varieties of bleeding which are:

Arterial. An arterial bleeding is bleeding from an artery. The loss of blood may be very rapid. The blood spurts from the wound with each pulsation of the heart beat and is bright red in color.

Venous. A venous bleeding is bleeding from the veins. The flow of blood is steady and the color is dark red.

Capillary. A capillary bleeding means bleeding from very small blood vessels and is manifested by oozing of blood from the wound. It is ordinarily not severe.

*Control of bleeding.* Most mild bleeding will cease by natural means. This results from a blood clot forming in the wound, preventing the further escape of blood. More severe bleeding, particularly arterial and venous, usually require one or more of the following artificial measures for control:

Elevation. Elevating a wounded extremity will aid in the control of bleeding by decreasing the volume of blood in the injured part and thereby encouraging the natural tendency to cessation of bleeding.

Pressure. Direct pressure is the most common and the safest method for the control of bleeding. If sterile gauze or bandage material is available, it can be used for direct pressure on the wound and held in place until a dressing is applied or a tourniquet adjusted. The dressing itself can be adjusted so as to exert some pressure.

Pressure with the fingers. When direct pressure on the wound does not control the bleeding, pressure upon the blood vessel between th heart and the wound

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is necessary. At certain places in the body, large arteries lie near bones and may be compressed to decrease the flow through them. Pressure may be applied with the fingers until a tourniquet can be applied.

Tourniquet. The use of a tourniquet is a dangerous procedure. One should not be employed if bleeding can be stopped by any other means. A tourniquet consists of a pad which is pressed against an artery, and a strap which is used to maintain pressure on the pad. Medical Department personnel carry issue tourniquets as part of their equipment, but satisfactory ones can be improvised. The pad may consist of a roll of bandage, a stone wrapped in a handkerchief, or any other hard, smooth object. The strap may be a bandage, a cravat, a belt, or a handkerchief. The strap should be at least 1 inch wide so that it will not cut into the skin.

For the arm and hand the tourniquet pad is applied about a hand's breadth below the armpit. For the thigh and leg it is applied about a hand's breadth below the groin. After tying the strap loosely around the limb the required degree of pressure is made by passing a stick or bayonet under the hand but opposite the pad and twisting it so that the pad is pressed down firmly. The stick is anchored with a bandage. The pressure exerted should be as light as will stop the bleeding.

Since a tourniquet cuts off the entire blood supply to the injured part, precautions must be taken that the tourniquet is not left on too long or the limb will die (gangrene). It should be loosened at least every 20 or 30 minutes. It should not be covered with a bandage or splint or it may be forgotten. Some sort of tag should be attached to the man marked 'tourniquet' and giving the date and hour when applied.

**Shock.** Shock is a condition of weakness which usually follows wounds, burns, or other injuries. This condition usually results from injury, but it may be caused by exposure, bleeding, fatigue, hunger, or extreme emotion. Some degree of shock follows all injuries; it may be slight, lasting only a few minutes, or it may be prolonged and end fatally. Where an injury is severe it can safely be assumed that a corresponding degree of shock will be present. Even if evidence of shock has not appeared after severe injury, it is well to anticipate it and to help prevent it by instituting shock treatment.

Symptoms of shock. Part or all of the following symptoms may be present:

The patient feels weak, faint, and cold, and may feel nauseated.

The face is pale and pinched and has an anxious and frightened appearance.

The skin is cold and clammy.

The breathing is irregular and sighing.

The pulse is weak and rapid.

*Treatment of shock.* (1) Place the patient flat on his back with the head low.

(2) Loosen all tight clothing.

(3) Avoid unnecessary movement of the injured part or of the patient, as pain will result and shock will increase. Move the patient no more than absolutely necessary before medical assistance arrives. If movement is necessary, apply the other shock treatment measures before moving the patient.

(4) Keep an injured person warm, but be sure not to overheat him because overheating can increase shock instead of preventing or overcoming it. Ordinarily, simply cover him with extra clothing or blankets. If the weather is cold, apply heat by means of bottles or canteens filled with hot water, or by means of warm stones or bricks. These warm objects can be placed between the legs, under the armpits, and beside the waist. They should be covered or placed between blankets and should not be put against the bare skin or against very thin clothing, because they may burn the person.

**Burns.** *General.* Burns may be caused by dry or moist heat, electricity, or chemicals. They are classified in degree according to the depth to which the tissues are injured. Shock and infection are to be feared in dry burns.

First-degree burn. The skin is reddened but there is no blister.

Second-degree burn. The skin is blistered.

Third-degree burn. The skin is destroyed or charred, as from contact with flames.

*Treatment of Burns.* (1) General rules. The following general rules apply to the first-aid treatment of all burns:

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(a) Do not pull the clothing from the burned part; snip or cut it off.
(b) Do not break or prick blisters if present.
(c) Treat shock early in all severe burns.
(d) When possible, protect the burn quickly with a sterile dressing, applying medication as indicated below.

(2) First-degree burns. The treatment is directed toward the relief of pain since the skin is unbroken and there is no danger from infection. Any substance that will relieve the pain is satisfactory. An oily substance such as petrolatum (vaseline), olive oil, or castor oil is usable. Cold water or soda water is soothing when applied immediately. It must be remembered that if the burn is at all serious, such as encountered in second-degree or third-dgree burns, oily substances are not to be applied.

(3) Second-degree burns. Here the injury must be regarded as an open wound; only material that is known to be clean can be used. Remove the loose clothing, but do not try to remove material that adheres to the skin. The application of sterile gauze soaked in a solution of Epsom salts (2 tablespoonsful to a pint of boiled water) is very good. The dressings should be kept moist and warm until further aid is obtained. The best treatment is application of gauze saturated with 2 per cent picric tannic acid solution applied securely but not tightly. A 5 per cent tannic acid solution similarly applied is of equal value. Never apply iodine or similar substances to a burn, and never apply absorbent cotton to a burned surface. Shock is always present to some degree in this type of burn.

(4) Third-degree burns. These are always serious and require medical attention promptly. The first aid treatment consists chiefly of keeping the patient warm and treating shock. If medical attention can be obtained promptly, it is best merely to lay a sterile dressing lightly on the wound. If over 30 minutes will elapse before help can be obtained, one of the dressings used for second-degree burns should be applied.

(5) Chemical burns. Burns caused by acids or alkalies should be washed with large quantities of water, preferably lukewarm, until the chemical is thoroughly removed. All clothing should be cut away with scissors. Apply a salve dressing after the chemical is completely removed, and secure a medical officer's services. Phenol or carbolic acid burns should first be washed with alcohol if available. Eye burns require careful attention. The best first-aid treatment is to flush the eye thoroughly with clean olive oil, mineral oil, or castor oil. If these are not available use water; a drinking fountain that throws a stream is excellent for this purpose. After washing, the eye should be covered with a moist dressing and further medical aid secured.

**Types of Fractures.** A *simple* fracture is a break in a bone. A *compound* fracture is one in which there is a flesh wound which extends through the skin and down to the broken bone. The flesh wounds in compound fractures are usually caused by the sharp ends of the broken bone or by bullets or fragments of high explosive shells, grenades, or bombs. Compound fractures are more serious than simple fractures because of the danger of infection in the flesh wound and because shock is usually greater. Careless handling of a simple fracture may cause it to become a compound fracture.

**Signs and Symptoms of Fracture.** One or more of the following signs or symptoms may be present when there is a fracture:

Pain and tenderness near the fracture.
Partial or complete loss of ability of the injured person to move the part.
Deformity (unnatural shape).
Swelling.
Discoloration (blueness about the point of injury).
Grating of bone ends may be felt, but no attempt should be made to produce this.

**First Aid for Fractures.** (1) Handle all persons with fractures or even suspected fractures with the greatest gentleness; rough or careless handling causes pain and shock. Immediate transportation of a person with a serious fracture is sometimes harmful even if done very carefully; this is especially true of fractures of the thigh, hip, leg, or back, and in all cases in which shock has already appeared. Give first aid including splinting of the fracture where the injured person is lying.

(2) Straighten the limb by pulling gently but steadily upon its lower end.

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(3) Keep up this steady pull and support the limb on either side of the fracture until a splint is applied.

**Splints.** A splint should be as wide as the limb and long enough to prevent movement of the next joint in either direction from the fracture. Temporary splints can be made from many common materials such as shingles, pieces of board, bayonet scabbards, pieces of tin, wire mesh, and folded blankets. Pad splints well on the side toward the skin and bind them securely in place at several points above and below the fracture but not over the fracture.

Be sure that bandages are not so tightly bound as to stop the circulation of blood when swelling of the limb occurs, as it usually does after a fracture. Swelling, coldness, stiffness, blueness, or numbness of a foot or hand is often due to too tight bandaging. If any of these signs are noticed, loosen the bandages which hold on the splints but do not remove them.

**Slings.** In fractures or other severe injuries of the arm or shoulder, the arm should usually be supported by a sling in addition to the use of splints or other first-aid measures. A triangular bandage makes a very good sling but arm slings may be made from ordinary bandages, clothing, or by using safety pins to fasten the coat or shirt sleeve to the front of the coat or shirt. The coat flap or shirt tail may be used as a sling by pinning it to the coat or shirt or by punching a hole through the lower edge of the flap or tail and buttoning this to one of the upper coat or shirt buttons.

**Self Aid.** It is important that every man who has been injured be able to give himself complete first aid. It must be remembered that the man will be dazed and partially incapacitated. He may have the use of only one hand. He will forget many things that he knows or has learned about first aid. He might however remember and do one or two things which will save his life or speed his recovery; if he does so, his training in self aid will have served its purpose.

He should be taught how to stop his own bleeding using an improvised tourniquet if necessary. This tourniquet should be loosened as prescribed about every 20 minutes. A man applying one to himself should never bind the tightening device into place. If he does so and loses consciousness, gangrene will certainly result.

He should be taught how to apply a bandage with one hand and how to use the sulfanilamide powder in his first aid kit to prevent infection. (See below) He should be cautioned that the wound pills in the first aid packet are to be used for emergencies only and not be taken for a cold or used as an improvised and unauthorized cure for gonorrhea.

When the wound pills are taken the man should take only those in his own packet. The procedure is to take 8 pills as soon after being wounded as possible, drinking as much water as possible. Then take 2 pills every half-hour thereafter, completing the 12 pills in one hour. Control of the dosage is very important and taking a double dose will not give double benefits. A man should learn to make himself comfortable and take what measures he can for controlling shock. Any unnecessary movement or activity is likely to increase shock and aggravate such injuries as fractures; for this reason the soldier should be duly impressed with the idea of remaining as quiet as possible.

The wound pills should not be taken unless large amounts of water can be taken with them. If there has been any excessive sweating prior to the injury, the pills should not be taken for some time. They must not be taken under any circumstances in the event of a throat wound or an abdomen wound.

Perhaps many things will be suggested which a man could do to help himself, but it must be remembered that everything taught concerning self aid must be simple, essential, and well learned. Anything else will not be used when an emergency occurs.

**Infection.** Whenever the skin is torn or cut, infection may occur. Infection is very likely to take place if a wound touches the ground, or if anything else dirty touches or gets into it. A wound which becomes infected is much more serious than one which is kept clean; so the prevention of infection is a very important first-aid measure. At the same time that bleeding is being stopped and a dressing applied, as well as after these first-aid measures have been carried out, care must be taken to keep a wound clean, in order to prevent infection.

Do not touch a wound with dirty hands or dirty clothing. Do not allow a wound to touch the ground. Do not wash a wound.

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Figure 49. Handling Person with Fracture of Lower Right Leg.

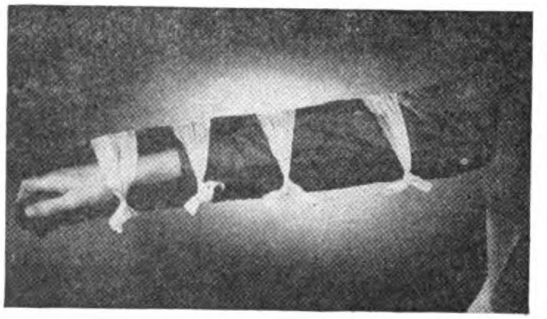


Figure 51. Splint on Elbow.

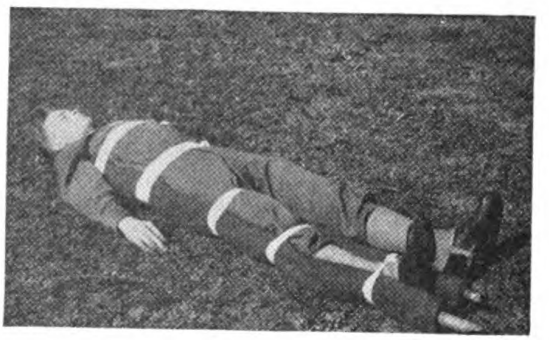


Figure 53. Splint on Upper Leg.

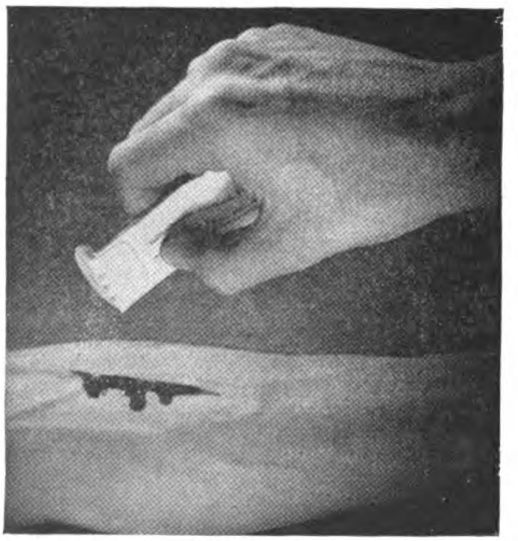


Figure 55. Sprinkling Sulfanilamide on Wound.

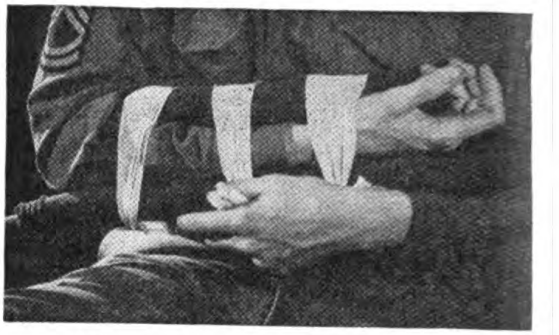


Figure 50. Splint on Forearm.

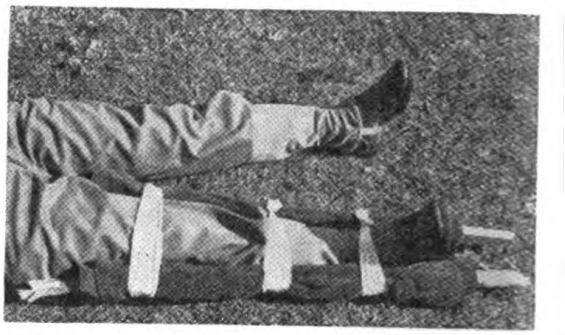


Figure 52. Splint on Lower Leg.

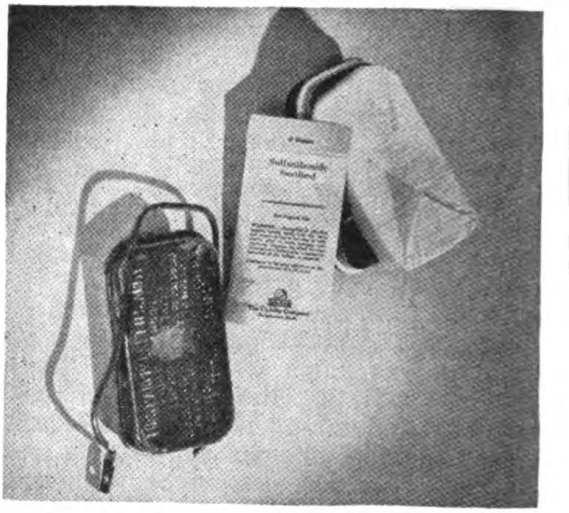


Figure 54. First Aid Packet and Sulfanilamide Shaker Envelope.



Figure 56. Opening First Aid Packet Bandage Without Touching Interior.

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If there is only a small amount of bleeding from a wound when first seen, or if bleeding has been easily stopped, sprinkle sulfanilamide (in the first-aid packet) into the wound and then apply the sterile dressing (also in the first-aid packet). When bleeding has been hard to stop, do not lift up or take off the dressing to sprinkle sulfanilamide into the wound. removing the dressing may start bleeding again.

The proper application of a sterile dressing is an important means of preventing infection as well as of stopping bleeding. To use the dressing in the first-aid packet, carefully remove the wrapper. Open the compress by pulling on the two folded bandages attached to the compress, being careful not to touch the inside of the compress with anything. Still holding one folded bandage in each hand, apply the compress to the wound. Wrap ends together or fasten them with safety pins.

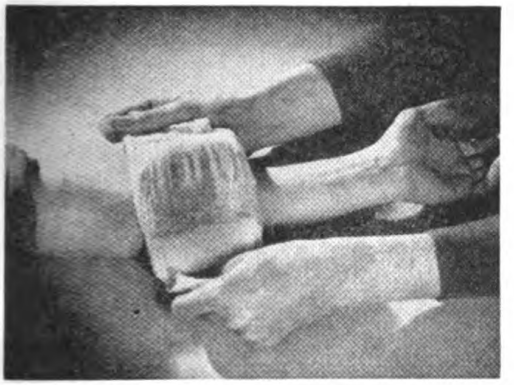


**Figure 57. Applying Bandage to Wound.**

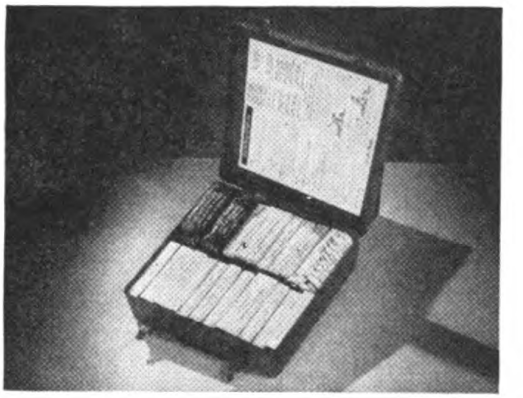


**Figure 58. 24 Unit, First Aid Box.**

When wounded other than in the abdomen or throat, take by mouth, along with a large amount of water, the eight sulfadiazine tablets (or the twelve sulfanilamide tablets found in some packets instead of sulfadiazine tablets) which are in the sealed packet carried in the first-aid pouch attached to the cartridge belt. If sweating has been great or if large amounts of water cannot be taken both with the drug and for 24 hours afterward, no sulfadiazine or sulfanilamide tablets are to be taken.

**Wounds Requiring Special Attention.** *Wounds Extending Into the Chest.* If there is a wound of the chest through which air is sucking in and blowing out, the life of the person may depend upon quickly applying a dressing which is large enough to cover the wound and which completely stops the flow of air through the wound. If this does not stop the back and forth movement of air, apply more dressing. A large piece of raincoat, overcoat, blouse, or shirt applied tightly over the dressing may be useful in making the dressing airtight. A person with a wound of the chest will be more comfortable and breathe more easily if he lies on the injured side.

*Wounds Entering the Abdomen:* If a bullet or other object has gone into or through the abdomen, the injured person should be given *nothing* to eat or drink. Under no circumstances give anything more than a few small sips of water to wet his lips. If the abdominal organs have come through the wound do not try to put them back. Sprinkle sulfanilamide over the wound and organs, and put on a large sterile dressing.

*Wounds of the Jaws, Mouth, and Face:* If there is a wound of these parts, the face of the wounded person should be kept pointed toward the ground in order to prevent blood from getting into the back of the throat where it may cause choking. Until bleeding stops, keep the person in a sitting position with his head bent forward. If it is necessary for him to lie down, or if he must be carried on a litter, keep his face pointed to the ground.

**Pain.** Some pain occurs sooner or later following all wounds. Pain is often so slight that it does not bother the injured person enough to require any particular attention but, if pain is severe, it must be relieved by simple measures such as keeping an injured person quiet and warm, carefully changing his position to make

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him comfortable, splinting an injured arm or leg, and gentle handling during transportation. Only when pain is severe, or when a badly injured person must be moved quickly (as from a wrecked vehicle or aircraft), is it wise to give him morphine. If pain is severe, however, a dose of morphine will not only relieve the pain but will also lessen shock. If morphine is needed to relieve pain, it will be found, already prepared for injection, in certain first-aid kits and packets, in the form of a collapsible tube with an attached needle.

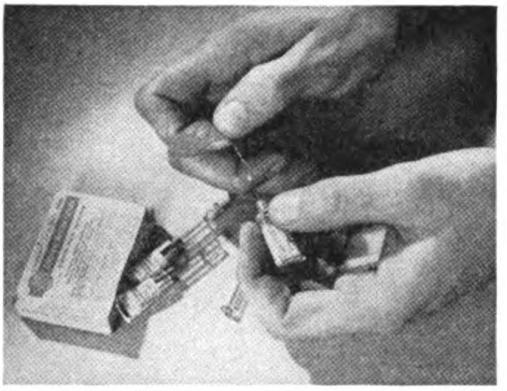


**Figure 59. Using Morphine Syrette.**

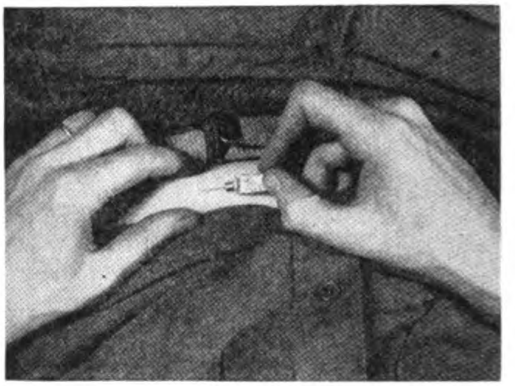


**Figure 60. Injecting Morphine.**

**Morphine Tartrate Syrette (½-Grain).** (For the relief of severe pain.) Remove the transparent head of morphine syrette. Grasp the wire loop and push the wire in to pierce the inner seal, turning if necessary. Take care not to touch the needle with the fingers or any other object. Pull out and discard the wire, thrust the needle through the skin at least half its length and inject the solution by slowly squeezing the syrette from the sealed end as shown in figure 60. That part of the body which can be most quickly and easily exposed (the loose skin of the abdomen, the thigh, or the upper arm), should be used for the place of injection. *(Caution:* The full effects of morphine are not felt for 20 to 30 minutes after injection; a second injection for continued severe pain should not be given sooner than 2 hours after the first. Never give a second dose of morphine to a person who is breathing 12 or less times a minute. Never give morphine to an unconscious person.)

## SUFFOCATION

Suffocation, or cessation of breathing, occurs most frequently in drowning, electrical shock, and gas poisoning. The safest and most effective method of applying artificial respiration is the prone pressure or Schaefer method. Oxygen respirators, which are available at many bathing beaches and military stations, are very efficient in trained hands but for unskilled personnel are less satisfactory than the Schaefer method.

**Drowning.** Being under water for over 5 minutes is usually fatal, but an effort to revive the apparently drowned should always be made unless it is known that the body has been under the water for a long time. It is very important that artificial respiration be started at the earliest possible moment after the patient has been removed from the water. Use the following technique: (1) Lay the patient face down, force his mouth open, pull the tongue forward, and remove false teeth, juice, vomitus, or debris from his mouth and throat.

(2) Raise him by the hips in order to drain the water from his lungs.

(3) Lay him on his belly, preferably at a spot where his head will be lower than his feet. One of his arms should be extended over his head, the other bent at the elbow so that his face can be turned to the side and can rest on the hand.

(4) Kneel astride the patient's thighs with your knees placed at such a distance from his hips as will allow you to exert the pressure on his lower ribs as described below. Place the palms of your hands on the small of his back with your fingers on his lower ribs, your little fingers just touching his lowest rib, with your thumbs and fingers in natural position, and the tips of your fingers out of sight just around the sides of his chest wall. The heels of the hands should be placed as far from the backbone as possible, without slipping off.

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**Figure 61.**

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(5) With your arms held straight, swing forward slowly so that the weight of your body is gradually brought to bear upon the patient. Do not bend your elbows. This operation should take about 2 seconds.

(6) Now immediately swing backward so as to remove all pressure completely and suddenly. Leave the hands in place if possible.

(7) After about 2 seconds repeat the operation. The cycle of compression and release should take about 4 or 5 seconds and should be repeated at the rate of 12 to 15 times per minute.

(8) Continue the operation without interruption until natural breathing is restored, or until the subject is unquestionably dead. Remember, many patients have died because artificial respiration has been stopped too soon. Always continue the operation for 2 hours or longer.

Aside from the resuscitation, the most valuable aid that can be rendered is keeping the patient warm. After artificial respiration has been started, have an assistant loosen the clothing and wrap the patient in any clothing that is available. Use hot bricks, pads, heaters, or similar means, but be sure the person is not burned by your treatment.

When the patient revives he should not be allowed to stand or sit up; this will prevent undue strain on the heart. Stimulants such as hot tea, coffee, or aromatic spirits of ammonia can be given as soon as the patient is perfectly conscious.

At times, a patient, after temporary recovery of respiration, stops breathing again; artificial respiration should be resumed at once.

Due to the length of time this operation may be kept up, one, two, or more operators may be necessary. A change of operators can be made without loss of rhythm of respiration. If this point is remembered no confusion will result when the change occurs and the respiratory count will be kept even. The great danger is stopping artificial respiration prematurely. In many cases, breathing has been established after 3 or 4 hours of artificial respiration, and there are instances where normal breathing has been reestablished after 8 hours. The ordinary and general tests for death should not be accepted; a medical officer should make several careful examinations at various intervals before the procedure is allowed to be stopped.

**Electrical Shock.** The rescue of the victim from a live wire is always dangerous. If the switch is near, turn the current off, but do not lose time looking for the switch. Use a dry stick, dry clothing, dry rope, or some other dry non-conductor in removing the victim from the wire. Start artificial respiration immediately. Do not regard early stiffening as a sign of death; always keep up the artificial respiration for several hours.

**Poisons.** *General.* The two principal points to be remembered in the treatment of poison cases are: (1), Poisons, when diluted, are not absorbed in as great quantities as when they are in a concentrated form; (2), the stomach can be cleaned out by causing vomiting or by washing. (Washing the stomach with a stomach tube should be attempted only by experienced personnel.)

*Treatment:* Vomiting is the first step in treatment; the fluids listed below are useful in producing vomiting:

(a) Soap suds from any type of soap.
(b) Salt water or soda water.
(c) Lukewarm water.
(d) 1 tablespoonful of mustard in warm water.

From four to seven glassfuls (preferably lukewarm) should be given; tickling the throat with the finger will then usually induce vomiting.

Additional first-aid treatment for specific poisons is as follows:

(a) For carbolic acid (phenol) poisoning, give soap suds or milk.

(b) For the corrosive poisons such as bichloride of mercury, give milk or the whites of eggs.

(c) For iodine poisoning give starch (or potatoes, flour or bread if starch is unavailable) in water.

(d) For strychnine poisoning, keep the patient quiet, induce vomiting, keep the patient warm and call a medical officer.

(e) For overdoses of sedatives, keep the patient on his feet and make him walk. Give strong coffee and get him medical attention.

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(f) For wood alcohol, shoe dye, or like poisons, induce vomiting and get medical attention.

(g) For acute alcoholism (drunkenness) treatment is usually unsatisfactory and unnecessary. Inducing vomiting and giving strong coffee will speed recovery. Cold baths are dangerous and without value.

**Unconsciousness.** *General.* Unconsciousness may be complete or partial. Frequently it is impossible to determine the cause, and treatment must be along general lines. An unconscious person with an odor of alcohol on his breath should not always be considered drunk. An intoxicated person may not have an alcoholic breath. It is always wise to consider the possibility of apoplexy and skull fracture in every case of unconsciousness. In examining an unconscious patient, look carefully for the cessation of breathing and for symptoms of poisoning, bleeding, or sunstroke, as special treatment for these must be given at once.

*Treatment:* Lay the patient on his back with the head and shoulders slightly raised. Apply cold cloths or an ice pack to the head. Insist on absolute quiet; do not move the patient unless urgent and then do so very carefully. Have sufficient cover to keep warm. Use no stimulants until the patient is awake and some cause for the condition is found. Call a medical officer.

**Fainting.** Usually allow the patient to lie where he falls if he can be made comfortable. Lower the head and shoulders by elevating the hips. Loosen the tight clothing. Sprinkling the face with cold water and inhalations of ammonia or smelling salts are beneficial.

**Head Injuries.** *General.* Comparatively mild blows on the head may cause concussion of the brain. This means actual bruising of the brain itself and is the condition present when we say a man has been 'knocked out' or 'stunned'. The usual symptoms are unconsciousness, pallor of the face, and quick and shallow breathing. The pupils of the eyes are of equal size and are usually small. The degree of insensibility varies. Sometimes the patient can be aroused but is irritable and lapses again into unconsciousness. The duration of symptoms is dependent largely on the severity of the injury.

More severe blows or falls on the head may cause fracture of the skull, hemorrhage within the skull, or concussion of the brain. In these more severe injuries the patient cannot be roused. There may be bleeding from the nose or ears. The breathing is deep and snoring. There may be paralysis of part of the body.

*Treatment:* It is often impossible to determine the severity of head injuries early; therefore extreme caution should be observed. The patient should be laid flat, with the head slightly raised. He should be kept warm. No violent efforts to rouse him should be made. Shaking his head or slapping his face and neck are very dangerous procedures since they may increase the injury. A medical officer should be called promptly. No stimulants should be given by mouth, but in the milder injuries aromatic spirits of ammonia may be inhaled with benefit.

**Snake Bite.** Treatment for snake bite should start immediately. The main effort is to prevent the poison from entering the general blood circulation. If on a limb, a tourniquet without the pad on the artery should be tied around the limb just above the bite to increase the bleeding. A necktie, handkerchief, or bandage can be used as a tourniquet. It should be tight enough to prevent the blood from flowing back through the veins, but not tight enough to prevent the blood flow in the arteries. *In any event*, it should not be left on for a period greater than 1 hour. Even if the bite is on a part of the body where a tourniquet can be used, a cross incision ½ by ½ inch should be made over each fang mark, and preferably one to connect the two fang punctures. The cut must be deep enough, ¼ to ½ inch, to insure free bleeding. Suction must then be applied by the mouth, glass breast pump, or by heating a bottle and applying its mouth tightly over the wound. The cooling of the bottle will produce considerable suction. Snakes' venom is harmless in the mouth unless there are cracks or wounds on the lips or inside of the mouth. The patient should be kept quiet and medical attention obtained as quickly as possible. Anti-venom may be given, but the free bleeding produced by incision and suction is of far greater value. Whisky is not only useless in the treatment of snake bite but it is distinctly harmful because of its depressing effect.

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**Insect Bites and Stings.** The proper removal of the stinger is important. This should be done by grasping the stinger with a pair of small forceps and removing it in its entirety. A paste made of baking soda, or a cold moist dressing using a dilute solution of salt, soda, or ammonia, is helpful.

Poisonous spider and insect bites should be treated in a manner similar to snake bites. A cross incision should be made and a loose tourniquet applied. Shock, if present, should be treated and a medical officer called.

For itching of mosquito or chigger bites, calamine lotion is very soothing. For extreme irritation, 2 per cent phenol may be added to the lotion. These preparations can be obtained at most dispensaries.

**Animal Bites.** The first-aid treatment for animal bites is the same as that for ordinary wounds, but medical advice should be sought even if the wound seems trivial, as animal bites are commonly infected unless dressed properly. If possible, the animal should be captured and examined to be certain that it does not have rabies.

**Sunstroke and Heat Exhaustion.** Both these conditions are caused by excessive heat, but they differ entirely in their symptoms and treatment.

**Sunstroke.** Sunstroke is a very dangerous condition usually caused by direct exposure to the rays of the sun and especially when the air is moist. The symptoms are headache, dizziness, and sometimes vomiting; the skin is hot and dry, and the face flushed; the pulse is rapid and full; the temperature is high, often ranging between 107° and 110°. Unconsciousness usually occurs and the body becomes relaxed; convulsions (fits) may occur.

*Treatment:* Remove the person to a shady, cool place if possible and loosen or remove the clothing. Lay the patient on his back with shoulders elevated. Apply cold to the head by means of wet cloths, ice bags, or ice. The brain cannot withstand the effects of high temperatures. Cool the body by giving cold baths for 20 minutes at a time combined with brisk massage of the limbs and trunk. Cold wet cloths or ice bags may be used. Wrapping the body in a sheet and pouring on cold water every few minutes is very effective. Do not overdo any of these procedures; stop every few minutes to observe the effects on the patient. If the skin again gets hot repeat the treatment. Give no stimulant by mouth whiles unconsciousness lasts.

Heat exhaustion is caused by exposure to high temperatures such as are encountered in boiler rooms, foundries, and bakeries. The first signs of heat exhaustion are dizziness, nausea, and uncertain gait. The face is pale, the body is covered with sweat, and the skin is cold and clammy. Breathing is shallow, the pulse is weak, and the temperature will be normal or slightly above. Fainting may occur. Remove the patient to circulating cool air, place him in a reclining position and let him drink freely of cool salt water (1 teaspoonful of table salt to a pint of water). Call a medical officer if the patient does not recover promptly.

**Freezing.** *Frostbite.* The symptoms of frostbite are cold in the affected part, then pain, and finally, loss of sensation. The flesh becomes white or bluish white.

Slowly thaw the frozen part by using extra clothing, applying it to another part of the body, or wrapping it in clothes soaked in cool water. Do not expose frozen tissues to a hot stove or radiator. Do not rub the frozen part either with the bare hands or with snow, as the tissues will be bruised and torn and gangrene may result. Medical attention is usually necessary after frostbite.

*Unconsciousness.* When a man becomes unconscious from cold carry him, if possible, into a cool room, cover him well with blankets, and move his arms and legs gently but steadily. When consciousness returns, give him warm drinks and let him lie quietly.

**Trench Foot, Shelter Foot, Immersion Foot.** These three conditions are practictically the same and are very much like mild frostbite. They may occur, however, at much higher temperatures and usually result from standing still or sitting for long periods in a wet trench or shelter, or from the hanging of the feet for a long time in water after ship wreck. Tight leggins and cramped positions of the legs increase the liability of the occurrence of these several conditions. They are best prevented by keeping the feet as dry as possible and by frequently exercising the legs to increase the flow of blood. First-aid measures are the same as those for frostbite.

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**Dislocations and Sprains.** When a bone gets out of place at a joint, the condition is called dislocation. When the ligaments around a joint are torn or bruised, the condition is called sprain. In both these conditions pain is usually severe and shock may be present. It is often impossible to tell the difference between a sprain, a dislocation and a fracture; when this is the case, the first aid given should be the same as for a fracture.

*First Aid For Dislocations.* If the injury is to the shoulder, elbow, wrist, or hand, place the arm in a sling. If the injury is to the hip, knee, ankle or foot, splint the limb and give the same care as for fractures in these parts of the body.

*First Aid for Sprains (strains).* In severe sprains of the shoulder, elbow, wrist, and hand, place the arm in a sling. For a sprain of the wrist, firm bandaging will give relief. In severe sprains of the hip, knee, ankle, or foot, it is sometimes necessary to apply a splint just as for a fracture of these parts. Firmly bandaging an ankle sprain sometimes gives relief and makes it possible to walk without much pain.

**Dysentery.** Dysentery is caused by impure drinking water or food, and is very likely to occur in the jungle unless certain precautions are taken.

*Prevention.* Dysentery may be avoided by purifying all drinking water and by eating only food which has just been cooked or taken from a sealed container.

*First-aid Measures.* If ill with dysentery, take only liquid foods and stay as quiet as possible until well. Add two salt tablets to each canteenful of drinking water.

In some of the first-aid kits there are sulfaguanadine tablets for the treatment of dysentery. Take four tablets every 4 hours, day and night, until the bowel movements are normal. If there is no improvement in 4 days, stop taking the tablets.

**Gas Casualties.** *General.* Prompt and proper first-aid treatment for gas casualties is of vital importance. Proper treatment will minimize the effects of the gas and will often prove the deciding factor in the outcome of the case.

*First-Aid Rules:* The detailed protection against and treatment for the various gases used in warfare are given in FM 21-40. The following simple general rules should be understood by all individuals:

(1) Wear mask and gloves when handling a gassed man. If gloves are not worn, wash hands thoroughly with soap and water or rub them with dry lime after handling such cases.

(2) Remove the casualty or the suspected casualty from the contaminated area as quickly as possible.

(3) Remove the patient's clothing and equipment unless undue exposure to cold will result, but leave his mask on until certain that the air is free from gas.

(4) If possible, remove all gassed cases from woods or low ground to knolls or hillsides. Do not carry them into dugouts or cellars, since most war gases are heavier than air.

(5) Do not allow cases affected by lung-irritant gases to walk or talk. The apparent mildness of these cases is often misleading.

(6) Remember that the clothing, equipment, or bodies of cases gassed with vesicants may contaminate anything with which they come in contact; blankets, litters, or areas on the ground occupied by such cases should be avoided by ungassed persons.

(7) Prevent patients with vesicant-gas injuries from rubbing their eyes, mouths, or genitals. Do not bandage the eyes.

*Special Measures:* (See FM 21-40).

(1) *Lacrimators:* Men who are lacrimated do not require evacuation as casualties. They only need to leave the contaminated atmosphere and face the wind, allowing it to blow into their eyes. They should not rub their eyes; their clothing and equipment should be loosened so as to get rid of entrapped gas. Bathing the eyes in cold water or with a weak boric acid or sodium bicarbonate solution will aid.

(2) *Irritant Gases (Sternutators):* These agents (such as DM) are not lethal in field concentrations. They may, however, cause such disability as to require evacuation.

Remove patient from the contaminated atmosphere, keep away from heat, and remove outer clothing. Flush the nose and throat with a weak solution of sodium bicarbonate (baking soda) or of ordinary salt.

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## TREATMENT OF GAS CASUALTIES

| Gas | Effects on Body | First Aid |
|---|---|---|
| Chlorine (Cl) | Lung irritant; causes choking and coughing, smarting of eyes and discomfort in chest. A 2-minute exposure to an average field concentration produces a casualty. Effect begins immediately. | Remove to pure air; keep quiet and warm; loosen clothing. Hot drinks of water, coffee or tea may be given if available; no alcoholic drinks. |
| Phosgene (CG) | Lung irritant; causes choking, coughing, pains in chest due to irritation of lower lungs. Approximately nine times more toxic than chlorine. A few breaths in average field concentration produces a casualty. Effects begin immediately but progress slowly. | Same as for chlorine. |
| Chlorpicrin (PS) | Lung irritant and lacrimator; lacrimation, coughing, nausea, vomiting, lung irritation. Approximately one half as toxic as phosgene. | Remove to pure air; keep quiet and warm; loosen clothing. Hot drinks of water, coffee, or tea may be given if available; no alcoholic drinks. Do not rub eyes; wipe off splashes of liquid agent on skin. |
| Mustard (HS) | Vesicant; blisters skin, symptoms delayed 2 to 4 hours. If exposed, eyes burn and inflame. Skin, in contact with liquid or gas, discolors, followed by blisters and sores. If breathed, hoarse cough develops, followed by severe pain in chest and inflammation of lungs. Approximately 4 times as toxic as phosgene. | First Aid must be prompt to be effective. Remove contaminated clothing; remove liquid agent from skin by daubing with clean cloth; apply protective ointment according to directions; wash with soap and water; flush eyes with water. |
| Nitrogen Mustard (HN) | Vesicant, blisters skin; effects same as mustard, except that eyes are irritated first by gas and irritation of eyes appears in shorter time. | First Aid same as for Mustard. |
| Lewisite (L) | Vesicant, blisters skin; skin shows slight irritation in 15 minutes followed by grayish discoloration and blisters in 30 minutes to 1 hour, systemic poisoning, vomiting. | Same as Mustard. |
| All Lacrimators Chloracetophenone (CN) Brombenzyl Cyanide (CA) Chloracetophenone Solutions (CNS or CNB) | Piercing irritation of eyes causing profuse tears, possible nose or skin irritation or nausea in extreme cases. Very effective even in low concentrations. | Remove to pure air, face into wind, do not rub eyes. No medical attention required. |
| Hydrocyanic Acid (Cyanide Gas) (AC) | Dizziness, headache, irregular pulse rate, coma, convulsions, death. | Remove to pure air, artificial respiration until arrival of medical aid. |
| Adamsite (DM) Sneeze Gas (DA) | Sneezing, burning in nose and throat, headache, nausea and vomiting. Temporarily physical debility. | Remove to pure air and make as comfortable as possible in the shade. |
| HC Mixture | None; smoke only. | None needed. |
| Sulfur Trioxide Solution (FS) | Mild prickling sensation to skin, non-injurious. | None necessary for smoke; for liquid agent wash affected parts with water and then with soap and water. |
| White Phosphorous (WP) | Smoke; none. Particles produce severe fire burns which heal very slowly. | Quench bits of burning phosphorous with water or by covering with a wet cloth; remove particles of phosphorous with stick or knife blade. If unable to remove keep covered with wet cloth until removed at an aid station. Also copper sulphate solution will neutralize phosphorous. |

(3) *Lung Irritants:* In order to reduce his oxygen requirements to the minimum possible, a lung irritant casualty should be made to lie down and not walk to an aid station even though he insists that he is able to do so. He should, as soon as possible, be removed from the contaminated atmosphere, his equipment removed, his clothing loosened, and he should be kept warm. In addition to wrapping him in

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blankets, non-alcoholic stimulants such as hot coffee or tea should be given, and he should be evacuated as soon as possible as an absolute litter case.

(4) *Vesicants:* All of the agents classed as 'vesicants' have also a powerful lung irritant action.

Mustard gas: The casualty should be immediately taken out of the contaminated atmosphere or area and his contaminated clothing removed. Should only portions of the clothing be splashed with liquid mustard, these can be cut away. If the face has been exposed, wash the eyes and rinse the nose and throat with a saturated boric acid, weak sodium bicarbonate, or common salt solution. If the vapor has been breathed, the individual should be treated and handled as a lung irritant casualty. First aid must be prompt for little can be done later than 30 minutes after exposure.

Vapor burns on the skin may be lessened or even prevented by thorough cleansing with soap and water (preferably hot) immediately after exposure. Cleansing the exposed parts with gasoline or kerosene prior to the use of soap and water will facilitate the removal of all traces of the gas.

Mustard burns or skin areas wet with liquid mustard should be immediately and repeatedly swabbed with a solvent such as kerosene, gasoline, any oil, alcohol. or carbon tetrachloride (pyrene).

Fresh cloths should be used and the spreading of the contamination should be avoided. After cleansing with the solvent, the affected parts should be thoroughly washed with soap and hot water. Cloths used in removing the liquid mustard will be contaminated and should be burned or buried after use. A weak, freshly prepared solution of chloride of lime in water may be used in place of the oily solvent; this solution is itself very irritating to the skin and must, therefore, be removed by subsequent washing with soap and water.

Fresh, uncontaminated clothing must be supplied where necessary. All casualties should be evacuated as soon as possible.

Lewisite: To be of any value against lewisite, first aid measures must be instituted almost immediately. The treatment is similar to that for mustard.

In lewisite burns, whether from vapor or liquid, the danger of poisoning from absorbed arsenic far overshadows the effect of the actual burn; it is, therefore, imperative to neutralize, if possible, any arsenic present and not yet absorbed. This may be accomplished by the immediate application of some hydrolyzing agent. A 5 per cent aqueous solution of sodium hydroxide (caustic soda) has been found very efficient if applied soon enough.

Following this, or in the absence of the hydroxide solution, vapor burns should be thoroughly cleansed with soap and water and then dressed with a ferric hydrate paste. The paste should be spread on thickly, covered with gauze, and allowed to remain for 24 hours. Following the hydroxide solution and cleansing with soap and water, liquid burns should be repeatedly swabbed with some oily solvent as suggested for mustard, again washed with soap and water, and dressed.

Fresh, uncontaminated clothing must be supplied where necessary. All casualties should be evacuated as soon as possible.

(5) *Incendiaries:* For burns from incendiaries other than white phosphorus, treatment and handling are the same as for ordinary heat or fire burns.

For phosphorus burns, immerse the affected part in water to stop the burning of the phosphorus and pick the solid particles out of the flesh. Wet cloth, mud, or damp earth may serve the purpose if immersion in water is not possible. As phosphorus melts at approximately 111° F., the melted particles may be removed with a cloth or sponge and hot water.

The prompt application of an approximately 2 or 3 per cent solution of copper sulphate in water will form a thin coating of copper phosphides on the phosphorus particles which will stop their burning at once. The coated particles can then be picked out of the flesh. The copper sulphate solution should be applied by soaking a pledget of cotton, a sponge, or a piece of cloth in the solution and then placing it on the phosphorus. A minute or two is sufficient time for the formation of the metallic covering coat. After removal of the phosphorus, the burns should be dressed. All severe cases should be evacuated.

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## CLEANLINESS AND STERILIZATION

Health discipline and cleanliness are of primary importance. Urge men to take showers as often as possible. If you are located in a permanent establishment, try to get them to take a bath every day. A constant watch should be made to check for athlete's foot. Floor and duck boards must be washed and dried in the sun daily if possible. Foot powder must be available. While aboard ship, only salt water is obtainable for bathing. Even a sponge bath a day is possible. Daily bathing should be recommended to the men for the health of the command.

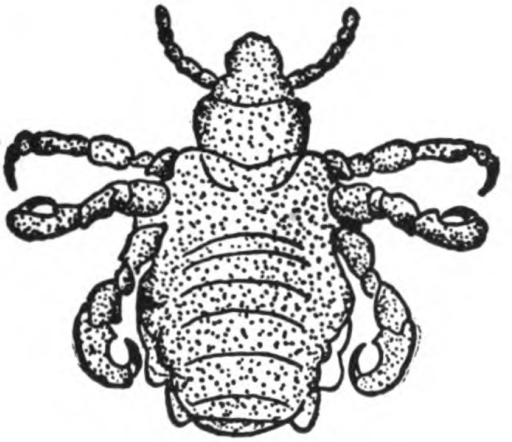


**Figure 62. Crab Louse.**

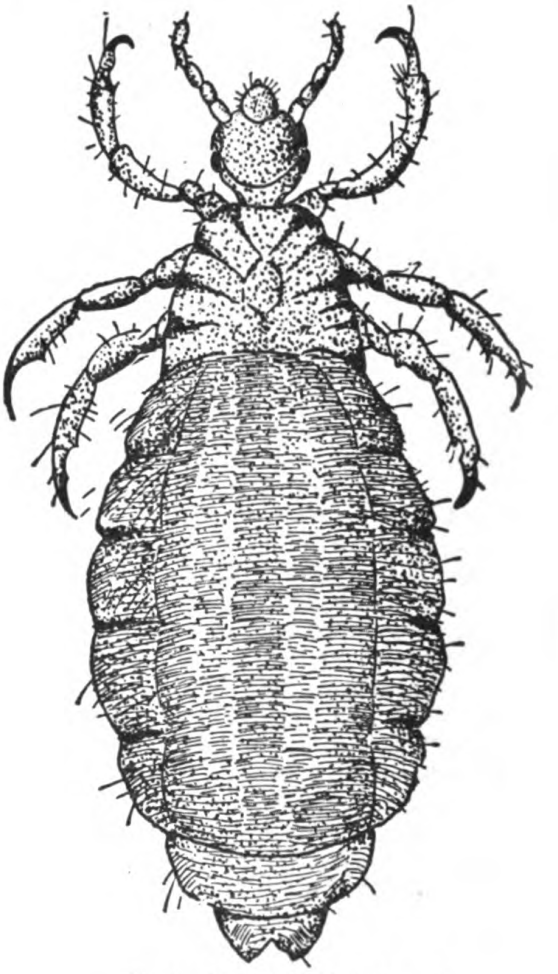


**Figure 63. Body Louse.**

Health discipline will also include clean clothing. The laundry facilities available should be used or arrangements made to secure clean linen. Get men to change their underwear as often as thought necessary, but suggest a length of time which accords with the existing laundry facilities.

It is probable that you may encounter a Fumigation and Bath company. This company is used to delouse and clean both men and equipment. The whole operation takes about eight minutes, and includes undressing, shower, delousing by machinery, and then picking up your clothes and equipment ready to wear. A Fumigation and Bath company may work as a battalion along with a shoe repair company and a laundry unit. If you are within reach of one of these units, make use of it. It is a help to morale, as well as health and well being of the men.

For recognition purposes here are two common parasitic insects which menace the health and comfort of men. In combat zones, in many foreign countries, and even in the States where men are crowded in close quarters lice, crabs, and bed bugs are apt to get a start. All officers should be on the alert and recognize these pests. They carry diseases such as typhus, and bubonic plague.

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D. D. T. delousing powder, steam, dry high temperature, kerosene, gasoline and boiling water are used to eradicate them.

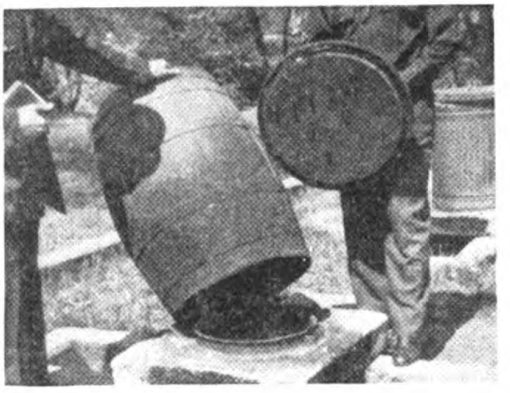


**Figure 64. Serbian barrel. Water is placed in container under this barrel. Clothes to be deloused are hung on hooks on the lid. Fire is built in the cross trench under the barrel. The steam in the barrel does the disinfecting.**

## UNIT BIVOUAC SANITATION

The selection of camp sites is governed by both military and sanitary considerations. At times the military situation may necessitate the selection of a camp site which is not entirely desirable from a sanitary standpoint; however, full weight should be given to sanitary considerations when the military mission will not be interfered with by doing so. Area commanders are responsible for the selection of camp sites and for protecting the health of the command by promptly initiating and strictly enforcing adequate sanitary measures.

Improper disposal of human excreta may cause serious epidemics. Adequate and suitable latrines must be constructed in appropriate places immediately upon going into bivouac. Latrines are company installations, maintained by the personnel of the company concerned. Latrines seats or space are provided to accommodate 8 per cent of the command at one time, each man being allowed 2 lineal feet of latrine space. They should be flyproofed. Latrines should not be dug below the ground water level. Latrines dug in clay are unsatisfactory since liquids will not be absorbed. Latrines should be placarded when closed, showing the date and the organization. Latrines should be located at least 100 yards from any mess, and so that drainage in to a source of water supply is impossible. The preferable location is about 30 yards from the end of the company street. A lighted lantern should be hung at each latrine at night unless the military situation demands concealment.

Areas must be kept policed at all times; refuse and garbage burned or buried. Upon evacuation of a shelter area, fires must be extinguished, latrines and kitchen pits filled and marked, and the site left in a thoroughly policed condition.

**Water Supply.** A safe rule in the field is to consider all sources of water as contaminated. Unless the Medical Department has already established that the source is not contaminated, all water should be treated before use.

Water supply must be carefully guarded against pollution, either by humans or by animals. Latrines and kitchen soakage pits must be located away from and on lower ground than the water source. In case a stream is to be used as a source of water supply, it should be marked off in zones and water guards posted. The zoning of a stream should be as shown in figure 65.

Commanding officers are responsible for protection of water supplies both before and after treatment. As a preliminary measure, water selected should be as clean as possible, and the heavy organic matter removed by straining or settling. One suggestion is to dig a pit 4 to 5 feet from the edge of a stream and 3 to 4 feet below the stream level to make a settling basin. Oil drums may also be improvised to serve as basins.

The following are methods of purification.

*Boiling.* This is the safest method, but it is the most undesirable because of the flat taste of the water after boiling. Boiling the water five minutes is the only requirement.

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*Lyster Bag.* A water sterilizing bag method. Suspend the Lyster bag on a tripod and fill to the mark 4 inches from the top, straining the water as you fill this bag. (Capacity: 36 gallons.) Draw a small quantity of water through one of the faucets into a canteen cup. Break a tube of calcium hypochlorite into the canteen cup, stir it with a clean stick and then fill the cup 2/3 full of water. Empty this solution into the water bag and stir thoroughly with a clean stick which is long enough to reach to the bottom of the bag. Draw at least one-half cup from each of the faucets, and pour it back into the bag. This is to sterilize the faucets.

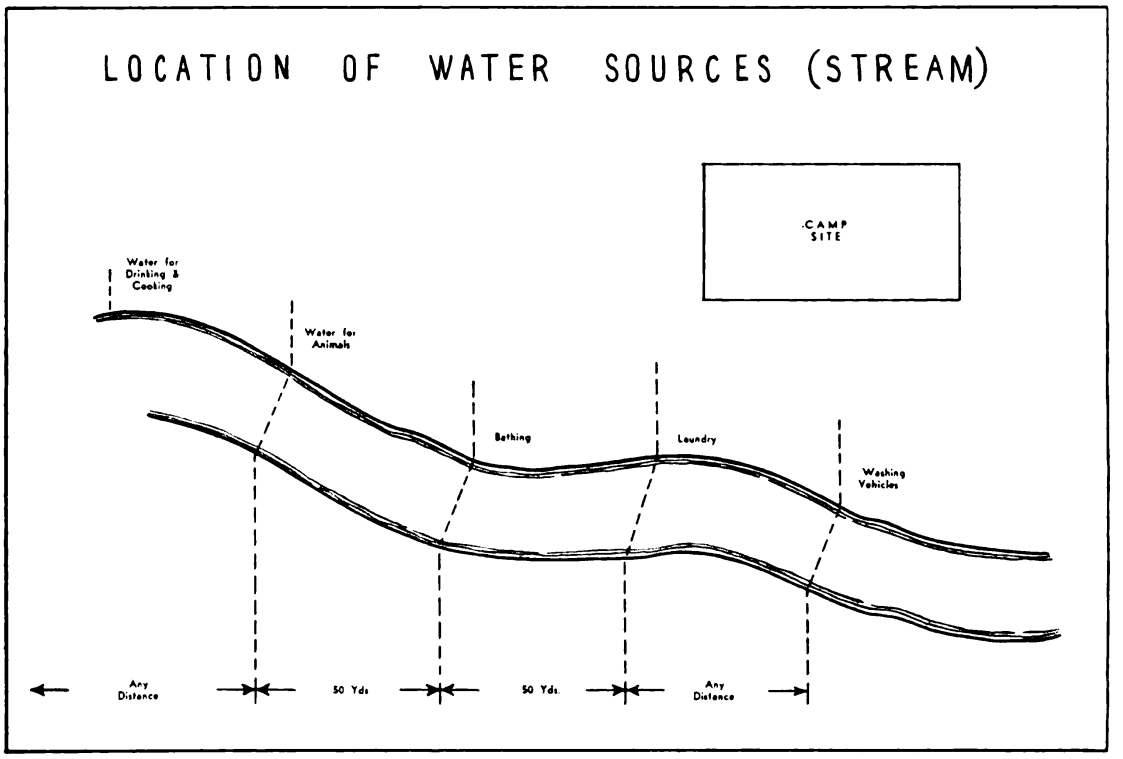



**Figure 65.**

*Iodine for Purification of Water.* In the absence of calcium hypochlorite, tincture of iodine may be used as a temporary expedient. Two or three drops of tincture of iodine will purify one canteen full of water. Thirty minutes should be allowed before the water is used.

*Halazone Tablets.* These Halazone (water purification) tablets must be used as directed on the container—one tablet per canteen, shake well, and let stand for thirty minutes.

*Water Systems.* The construction and operation of pipe lines, pumps, and reservoirs are the functions of either the Quartermaster Corps or the Corps of Engineers. In the field, all the water you will use will be secured from the Engineers.

All commands will direct troops consuming water to draw from engineer water points. Water drawn from these points is purified and tested by technical engineer troops. In the event that the necessity for use of water from other than engineer water points arises, the Halazone tablet will be used as recommended above.

If you are in a zone where water is a critical item the conservation of water will be a great necessity. If this situation occurs, higher headquarters of a command will publish instructions to govern conservation of water.

Desirable sanitary features of camp sites from the standpoint of sanitation are:

(1) Accessibility to a supply of good water and fuel.
(2) Sandy loam or gravel soil, favorable to waste disposal.
(3) Firm, grass-covered turf.
(4) Elevated, well-drained site.

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(5) Sufficient space to avoid crowding and to permit proper spacing of kitchens and latrines.
(6) Shade trees as protection from sun in hot weather.
(7) Protected slope or trees as windbreaks in cold weather.
(8) Firm ground for vehicle parking.
(9) A good road net.
(10) Concealment from air observation and protection against the elements.

A few don'ts about sanitary camp sites: *Don't use:*

(1) Dry beds of rivers, ravines, or the base of a hill if there is likelihood of rain
(2) Clay soil or loose, dusty soil.
(3) Marshy ground or areas near stagnant water courses which may constitute sources of mosquitoborne diseases and be subject to mist or heavy dew.
(4) Ground water less than four feet from the surface of the ground.
(5) Steep slopes.
(6) Location close to native villages, especially in malarial regions.

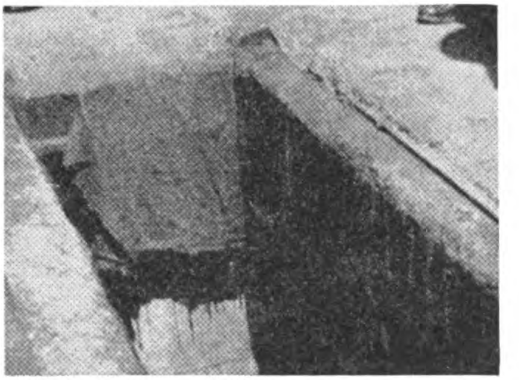


**Figure 66. Using Oiled Sacking in a Latrine.**

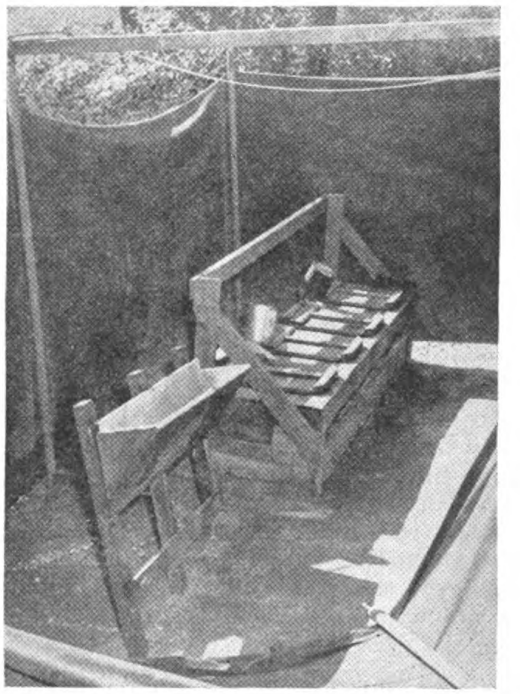


**Figure 67. Box Latrine and Urinal, Semi-Permanent.**

**Sanitary Installations in Camp.** *Latrines.* Locate these on side of camp opposite to the prevailing wind at least 100 yards from the kitchen and 30 yards from tents, and in such a position that they will not drain into the water supply. The latrine itself consists of either sixteen feet of straddle trench or two standard quar-

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termaster latrine boxes with deep-pit latrines for each 100 men; five urine pipes for each 100 men; and one urine soakage pit for each 200 men if urine pipes do not enter latrine pits.

*Kitchen Installations.* Kitchen wastes may be buried if the camp is to last less than one week. The kitchen should be located at the opposite end of the camp from the latrines.

*Kitchen Wastes.* Locate the pits for burying wastes at the opposite end of the campany street from the latrines. There should be one soakage pit with barrel or baffle grease trap for each 200 men messing at the kitchen. Install a second soakage pit if the camp is to last over 2 weeks. There must also be for each company, three cans for washing mess equipment.

*Wash Benches and Shower Baths.* Locate between the company street and the latrines. There should be ten feet of wash bench for each 100 men and, if possible, one or two shower heads to each 100 men.

*Water Supply.* Locate the water sterilizing bags between the kitchen and the company street. Average total consumption per person per day:

| | |
|---|---|
| Semi-permanent camps | 29-40 gallons |
| Temporary camps | 5 gallons |
| Bivouac or marching | 2 gallons |
| Minimum in combat | 1 gallon |

*Dump and Compost Pile.* Locate this at least 1,000 yards from tents. Its size depends upon the size and the duration of the camp.

**Closing Camp.** Prior to leaving the camp site, all sanitary installations should be closed. Latrines and kitchen soakage pits should be filled in and the spot indicated by a marker showing the organization, the nature of the installation, and the date it was closed. *Remember that today's camp may be tomorrow's line of communication.*

## RECOGNITION OF EMOTIONAL AND MENTAL PROBLEMS BY THE LINE OFFICER

The purpose of this section is to aid and direct organization commanders and their assistants in recognizing and properly handling men with definite personality difficulties or possible frank mental disorders. This is what Lt. Colonel R. Robt. Cohen, Psychiatrist, ASFTC, (ORD), A.P.G., has to say about behavior problems:

Research in the Army has indicated that there are four principal periods which may be termed critical in the mental life of most soldiers. These are: basic training, extended periods of idleness or isolation (e.g. casuals), alerted period before embarkation overseas, and combat. These are the times during which symptoms of mental diseases may be expected to be most widespread and pronounced. It is important to note, however, that many mild, transient evidences of tension due to the stress of these situations are bound to occur in normal individuals and must not be interpreted as unusual or abnormal. It is only when the symptoms persist or increase in periods of lesser stress that maladjustment or mental disorders may be suspected.

Fundamentally most of the symptoms or problems encountered by officers are a product of inadequate resolution of conflict within the individual personality. Since it is very often the 'inner struggle' which causes these maladies, it would be well to become familiar with the symptoms or ways in which conflict reveals itself.

Behavior problems most frequently encountered in the Army may be roughly grouped into five major categories: temporary maladjustment (situational), mental dullness (mental deficiency), character defects (psychopathic personality), nervousness or nervous breakdowns (psychoneurosis), and insanity (psychosis).

*Temporary Maladjustment (Situational).* The principal point to be noted is that the trouble is not deep-rooted or of long standing. The symptoms are due to unfortunate circumstances of the moment.

Examples of the symptoms to be expected are:

1. Discouragement or disinterest in training or assignment
2. Bitterness expressed toward the war effort or Army
3. Irritability
4. Aggressiveness

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5. Resistance to discipline, usually but not always mild
6. Homesickness, shown by seclusiveness, weeping, worry, etc.
7. Infractions of minor regulations, late on pass, formations, etc.

Among the likely causes of this kind of trouble may be listed
1. Domestic problems—marital, financial, sickness
2. Physical causes—lack of stamina, overage, physical disabilities
3. Malassignment
4. Personality clashes—personal grudges

Suggested dispositions in these cases include
1. Personal interview by C.O. (most cases)
2. Referral to Consultation Service for problems like transfer to a physical training company
3. Referral to Red Cross for domestic problems, finances, etc.
4. Referral to Personnel Officer for dependency discharges, etc.
5. Referral to Legal Assistance Clinic for wills, divorces, etc.
6. Referral to Chaplain
7. Minor punishments—restrictions, extra duty, etc.

*Mental Dullness (Mental Deficiency).* The symptoms in this common problem usually show up in basic or early technical training. It is important to bear in mind that mental defectives are useful in the Army if not given complicated tasks or responsibilities beyond their capacity.

Examples of the most typical symptoms are:
1. Carelessness in appearance and execution of orders
2. Illiteracy
3. Inability to do simple reasoning or planning
4. Very low test scores—Grade V on AGCT
5. Physical complaints unconsciously used to excuse or draw attention away from his stupidity (e.g. back pains, leg pains, eye trouble, headaches when thinking)
6. Very poor memory and lack of general information (e.g. name of President of U.S.A.)
7. Inability to count, salute, spell, learn ASN, learn Army ranks or learn general orders

The main causes of this deficiency are:
1. Natural lack of mental ability
2. Very poor education
3. Foreign birth or schooling (poor understanding of English)

The following dispositions are recommended:
1. Transfer to special training unit if possible
2. Assistance by NCO's in letter writing, reading, etc.
3. Referral to Consultation Service if seriously inapt for study and possible Section VIII discharge
4. Assignment to menial tasks
5. Encouragement in training, assignment, etc.

*Character Defects (Psychopathic Personalities).* This is a more or less varied type difficulty, but one which usually results in a typical disciplinary problem for military organizations. The most significant fact in these cases is that punishment is often ineffective if not a waste of time for the Army. All of these men have a life long personality defect which makes it impossible for them to profit by experience.

Principal symptoms are:
1. Chronic alcoholism or drug addiction
2. "Goldbricking" and malingering
3. Repeated AWOL's, courts-martials, stockade sentences
4. Frequent venereal diseases, sexual perversions
5. Belligerency, fighting, chronic resentment of any discipline, authority or regimentation, excessive profanity, always in arguments or "trouble"
6. Disloyal, deceit, lying, stealing
7. Impulsiveness, many promises to "reform", frequent transfers or requests to change jobs
8. Frequent reduction in rank—"being busted"

The cause of this disorder is obscure. A constitutional personality defect has

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made these individuals unable to profit from experience. They have always been this way and on questioning show similar difficulties living by the rules of society in civilian life. Their life stories often contain these factors:

1. Very irregular, stormy family background with too much or too little discipline and lack of affection and security
2. Inability to control habits
3. Other emotional disorders such as nervousness, mental deficiency, etc.

Suggestions in handling these cases follow:

1. Mild punishment to note effect or lack of effect
2. Referral to Consultation Service (especially Psychiatrist) to determine whether man is responsible for actions, whether should be punished, hospitalized or discharged.
3. Personal interview by C. O.
4. Prevention of allowing serious cases to mingle too closely or influence other men, especially recruits or trainees.

*Nervousness or Nervous Breakdowns (Psychoneurosis).* This is one of the most common types of problem and is particularly acute in units in or training for combat. It may affect any organ or part of the body, but usually shows up in three body systems, the digestive, the circulatory and the nervous system.

The symptoms are extremely numerous but may be roughly divided into the psychological and physical.

Examples of the psychological symptoms are:

1. Extreme shyness, lack of confidence and self consciousness
2. Feelings easily hurt, worry over trifles
3. Seclusiveness, shunning all crowds or noise
4. Fears of harmless objects or situations (e. g. the dark, blood)
5. Very easily angered, brought to tears or laughter
6. Day dreaming, emotional depression

Physical symptoms:

1. Complaints of the digestive system—e. g. belching, heartburn, nausea, loss of appetite, vomiting, constipation, diarrhea
2. Complaints of circulatory system—e. g. heart pains, rapid heart beat, shortness of breath
3. Complaints of nervous system—e. g. dizzy spells, headaches, numbness, insomnia
4. Complaints of back pains
5. Multiple vague complaints

Probable causes of nervousness are:

1. Lack of emotional security
2. Deep-seated feelings of inferority
3. Parental overindulgence (e.g. being "spoiled" as a child)
4. Tense, high pressure situations (e.g. POE, battle)
5. Long periods of loneliness or idleness
6. Conflicting drives (e.g. fear of death vs. social approval)

Recommended dispositions of these cases include:

1. Personal interview with C. O.—encouragement not coddling
2. Referral to psychiatrist (usually after short duty trial)
3. Referral to infirmary or hospital if sudden or urgent

*Insanity (Psychoses).* Although these cases are probably the easiest to recognize when they have fully developed, complete insanity is relatively a less frequent problem in the Army than the other disorders mentioned. Immediate referral to a psychiatrist when significant symptoms are spotted is the most important principle to follow.

Some symptoms are listed below:

1. Extreme listlessness, carelessness in appearance
2. Spells of forgetting, confusion
3. Incoherence in thought and speech
4. Consistently silly behavior
5. Feeling of utter worthlessness
6. False belief of persecution (e.g. victims of plots, spy rings, etc.)
7. False beliefs of reference (e.g. Everyone laughing, talking, thinking about him)

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8. False beliefs of grandeur (e. g. Idea that he is Napoleon, Christ or a great inventor)
9. Hallucinations (e.g. seeing ghosts, hearing God speak to him)
10. Prolonged weeping, melancholy, empty stares
11. Prolonged excited state, wild elation, shouting

The principal disposition to be made in cases which are suspected of having or developing such serious disorders is immediate referral to the psychiatrist who will determine:

1. Hospitalization and return to duty if cured
2. Hospitalization and discharge under CDD
3. Return to duty (permanent or trial)

## Conclusion

As mentioned previously, there are roughly four stages in a war-time soldier's military experience in which mental stress and strain is greatest. In conclusion it may be well to summarize the main signs of mental trouble according to the phases in which they most commonly appear:

| Period | Most Common Symptoms of Mental Trouble | | |
|---|---|---|---|
| Basic Training | Temporary Maladjustment—as shown by | | |
| | Homesickness | | Resentment at loss of civilian privileges |
| | Discouragement | | |
| | Difficulty in drill, calisthentics, RPI | | Resistance to discipline |
| | Mental Dullness—as shown by | | |
| | Carelessness in appearance | | Inability to count, learn ASN, learn orders |
| | Illiteracy | | |
| | Inability to do simple reasoning | | |
| | Character Defect—as shown by | | |
| | "Goldbricking" | | |
| | Repeated AWOL's | | |
| | Nervousness—as shown by | | |
| | Seclusiveness | Fears | Insomnia |
| | Shyness | Anxiety | Weeping |
| Extended Period of Idleness (Casuals) | Temporary Maladjustment—as shown by | | |
| | Resentment | | Insecurity feeling |
| | "Goldbricking" | | Bitterness |
| | Character Defect—as shown by | | |
| | Chronic drinking | Fighting | Frequent V.D. |
| | Repeated AWOL's | Courts Martials | |
| | Nervousness—as shown by | | |
| | Irritability | Physical complaints | Headaches |
| | Lack of confidence | Dizzy spells | Heart pains |
| | Fears | Upset stomach | |
| | Insanity—as shown by | | |
| | Confusion | Silly behavior | Prolonged depression or excitement |
| | Incoherence | Seeing things | |
| | Fancied wrongs | | |
| Pre-embarkation (POE) | Nervousness—as shown by | | |
| | Worry, Insecurity | | Excessive sweating |
| | Increased tension | | Increased digestive complaints |
| | Increased dizzy spells | | Increased circulatory complaints |
| | Character Defect—as shown by | | |
| | AWOL (boat jumping) | | |
| In Combat | Nervousness—as shown by | | |
| | Startle reaction | Fainting | Vomiting |
| | Fear of guns | Shaking | Confusion |
| | Palpitation of heart | Severe headaches | Battle nightmares |
| | Numbness of limbs | | |
| | Insanity—as shown by | | |
| | Confusion | Wild elation | Dull, fixed stare |

## MOTOR MARCHES

Much advanced planning must go into the organization of a motor march. Without this the transportation of troops and materiel will be subjected to many needless hazards. These must be determined before hand the type and technique to be employed throughout the march. The personnel responsible for the safe conduct of the journey must be cognizant of its manifold responsibilities.


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All factors that enter into the successful operation of a motor march must be considered. The operating and maintenance personnel must be properly selected, trained, and disciplined. Trained and experienced commissioned and noncommissioner officers must be on hand to exercise strict supervision and control of operations. The capabilities and limitations of the driver and the vehicle must be carefully considered. The limitations imposed by the road net, the tactical plan and enemy activity must be understood. A well organized maintenance program is of the utmost importance. Here are needed proper repair facilities, routine checkups and frequent and more detailed inspections. Finally, careful reconnaissance of the routes to be travelled must be made.

## DRIVER SELECTION AND TRAINING

The effectiveness of any training program depends on the qualifications of instructors. It is essential, therefore, that every effort be made to select as program personnel the most highly qualified individuals in the organization. All the necessary information regarding the technical knowledge of a potential instructor may be obtained from official records, through interview, and by written test. The following qualifications should be given consideration, the final selection being based upon the comparative ratings of the prospective instructors:

a. Education and experience (vehicle operation and maintenance)
b. Technical knowledge (written test)
c. Personality
d Intelligence (Army General Classification Test, described in AR 615-25).

Individuals vary widely in physical and mental abilities. There are some so poor in abilities necessary for safe and skillful driving that it is advisable to eliminate them as army drivers. Steps must be taken to weed out such individuals before time and effort have been expended in attempting to train them to drive an army vehicle. Aptitude tests considered to be the most significant for the purpose of selecting men to be trained as army drivers are listed below. Army Regulations require that the test described in FM 25-10 or TM 21-300 be used and that all individuals satisfactorily complete these tests before a permit is issued (AR 850-15, par 16).

*Test of Visual Acuity.* This is administered to eliminate from training those who have defective vision. The test is made with the Snellen Eye Chart under the supervision of a medical officer. The minimum requirement is a score of 20/50 (not more than one error per line) with each eye. If the subject wears glasses, he is tested while wearing them. If glasses must be worn to meet the minimum requirements, the individual's operator permit is valid only when the operator is wearing glasses, except in emergency, and the permit must state this fact.

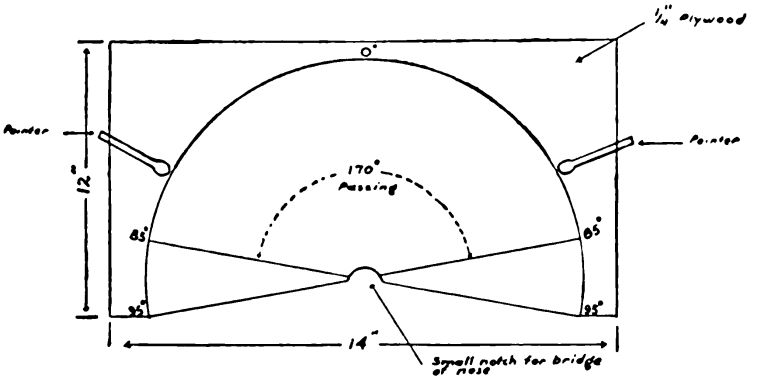



**Figure 68. Side Vision Testing Device.**

*Test of Side Vision.* This test is to determine how well an individual can see on either side, when looking straight ahead. Poor side vision is generally indicative of serious eye disorders. The test is made with a semi-circular board 22 inches in diameter and calibrated in degree along its outer edge. This board is held against the subject's face with the straight edge centered at the bridge of his nose. With his vision focused directly ahead, a piece of chalk or similar object

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is passed along the outer edge of the board, starting at a point opposite the subject's left ear.

The point at which he first sees the moving object represents the extent of vision to the left side. The test should be made at least twice for each eye and the average score taken. The recommended standard is a score of seventy-five degrees on each side.

*Optional Tests.* Other tests that might profitably be used are those which check night vision, color vision, blood pressure and reaction time. Of these the color vision, and reaction time test are the most significant. Color blindness alone may not be a serious handicap to a driver, provided he is aware of his condition, makes it a point to watch carefully the action of other vehicle operators, and learns the relative positions of red and green lights in various localities.

Several devices are used to determine an individual's ability to think and act quickly, but unless time is a very important factor in the selection program. knowledge of a man's reactions can be had by close observation during actual driving practice. Since situations vary greatly according to the number of men to be selected and trained, the number of drivers needed, time and facilities available, and the capabilities and number of instructors, no set rules can be laid down to be followed in the selection of drivers. Insofar as possible, the men having the highest physical qualifications should receive preliminary consideration, but men of previous experience, dependable character, mechanical aptitude and general intelligence have proved to be excellent drivers, even though not as well physically fit for the work as others. The individual who takes pride in his work often overcomes handicaps. Every effort must be made to select driver trainees who have a liking for vehicle operation and care, plus a respect for the equipment they will be trained to use.

**Program of Instruction.** Since conditions of training are variable, the time devoted to the different phases of instruction will be dependent upon local time, facilities, and needs. In all cases, the most practical method for training drivers has been to includes as much vehicle operation as time will allow and to incorporate the Driver's Daily Preventive Maintenance Service in every phase of learning through individual performance.

Preventive maintenance, which means preventing malfunctions and failures before they occur is the only means by which vehicles can be kept rolling. It is the driver's job to keep the vehicle in the best possible operating condition at all times. To accomplish this, he must make regular, systematic checks both daily and weekly, using W.D. Form No. 48 Driver's Trip Ticket as a guide. The ticket is self-explanatory, since it contains all necessary information for checking the vehicle. It must be in possession of the driver at all times.

Detailed explanations of the inspections and services to be performed on the vehicle appear in another section of this manual (Motor Vehicle Preventive Maintenance) but this phase of driver training cannot be effectively taught until the student driver has become acquainted with the nomenclature, purpose, and location of the various units, accessories, and assemblies that form the component parts of a motor vehicle. Therefore, it is better to teach this part of the program before an attempt is made to explain or conduct a complete preventive maintenance inspection. The nomenclature, purpose, function and driver checks are the main teaching points of each lesson, with practical application by individual student performance an integral part of the training. Consequently, the subject matter is covered progressively and in logical sequence, with the student performing the P.M. services on the various units after he has been told why, where, and how the checks should be made. The lectures, which are of short duration, are followed immediately by practical application until the student is able to perform a complete weekly inspection service under supervision.

**Techniques of Driving.** *Preliminary Driving.* Careful instruction and painstaking supervision must be the rule during the driving instruction period to insure that the driver learns the correct performance of his duties and forms the proper driving habits. A driving course properly laid out and organized is of great aid to instructors and is generally used unless facilities and time make is impossible. A good driving course includes many types of roads and obstacles. Some of those to be encountered should be hard surfaced roads, dirt roads, mud holes, hills,

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sand and dust, sharp turns and turn-around points. Preliminary driving, however, should be confined to observation of safety rules and practice in operating the various controls such as the clutch, transmission and transfer case shifting levers, brakes, steering gear, instruments, and switches.

*Gear Shifting.* Actual driving instruction begins with gear shifting and use of the clutch. Shifting gears on a vehicle permits enough turning effort to be applied to the wheels for the load, grade, speed, or road conditions under which the vehicle is travelling. Allowing the engine to labor is a most effective means of burning out crankshaft bearings. Therefore, sound judgment must be used in selecting the proper gear. Vehicles should always be driven in a gear that will permit acceleration if necessary. It is exceedingly bad practice to wait until the last minute to shift gears and the experienced driver, anticipating the need for changing gears, shifts in time to keep the vehicle from losing momentum. Student drivers should receive considerable practice in shifting from one gear to another, both from lower gears to higher (shifting "up"), and from higher gears to lower (shifting "down").

Use of the clutch: The clutch provides a means of applying the engine power to the wheels smoothly and gradually. The driver must get the feel of the clutch; that is, know just where it starts to engage, how far the pedal travels until it is fully engaged, how much free travel there is, how fast the clutch should be engaged, and how much the engine should be accelerated to put the vehicle in motion smoothly without jerks or stalling. The size and weight of the vehicle, along with the load it carries, has considerable effect on the feel of the clutch and the ease with which the gears can be changed. Thus, instruction must include the operation of vehicles of different types and under varied conditions of speed and load.

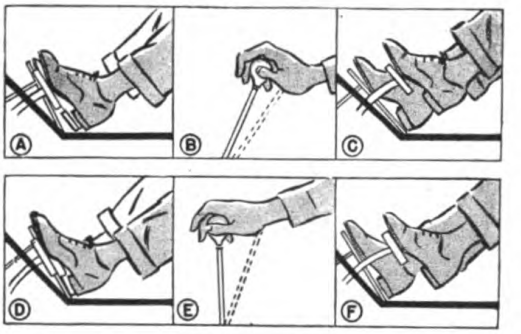



**Figure 69. How to Double-Clutch.**

**To shift into a lower gear when running in high—(A) declutch, (B) put gears into neutral, (C) engage clutch and simultaneously speed up engine for an instant, (D) declutch, (E) shift gears, and (F) engage clutch again with simultaneous increase in engine speed to very nearly maximum.**

Double clutching is employed to make gear engagement smooth and noiseless by synchronizing the speeds of the gears before they are meshed. It is unnecessary on the light weight vehicles such as ¼ ton 4x4 or passenger cars, but imperative with heavy trucks, particularly when shifting down. Shifting to a lower gear by double clutching is done as follows: (a) depress the clutch pedal; (b) move gear shift lever to neutral; (c) release clutch pedal, at the same time accelerating the engine to a speed relative to that of the wheels; (d) depress the clutch pedal: (e) move the gear shift lever to the next lower speed; (f) release clutch pedal, at the same time depressing the accelerator. The procedure is the same for shifting up except that it is unnecessary to accelerate the engine when the gear shift lever is in neutral. Double clutching becomes simple and automatic with practice, but for purposes of instruction, new drivers should start with small vehicles that can be shifted conventionally.

*Use of front axle drive and low range transfer case.* The transfer case provided on military vehicles has two gear ratios, high, which does not change the gear ratios provided by the transmission, and low, which gives a greater gear reduction than that provided by the transmission. The transfer case also provides a means for engaging or disengaging the front axle drive. The transfer case has

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two shifting levers in the driver's compartment, one for the selection of high or low range, one for the front axle drive. High range is used for normal operation over roads, and the low range for heavy duty pulling where additional power is needed. Pulling through sand, loose or soft earth, up steep inclines, or towing a heavy load requires additional power which is gained by the use of lower gear ratios provided in the low range of the transfer case. The transfer case doubles the number of total gear ratios of the transmission, and can be used in low or high range with the transmission being shifted in the usual manner. Shifting from high to low range in the transfer case should be done only when the vehicle is at or near a standstill and can be accomplished easily by double clutching. If difficulty is encountered in shifting the transfer case, the lever should not be forced under any circumstances. Slipping the clutch, that is, engaging it only part way while slightly depressing the throttle, will usually permit engagement of the transfer case gears. As soon as the teeth begin to mesh, the clutch should be fully disengaged and the shift completed.

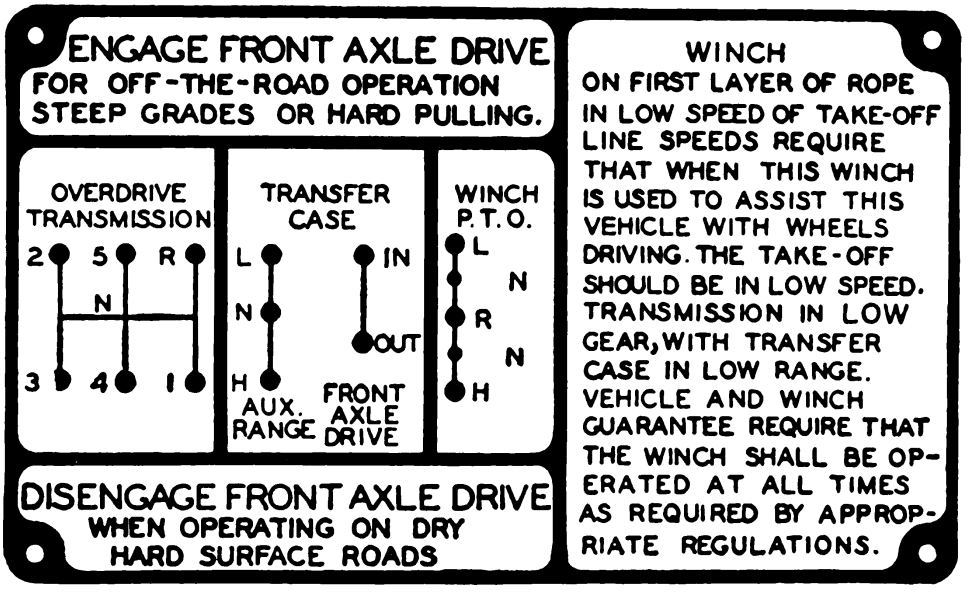



**Figure 70. Transmission, Transfer Case and Power Take-off Shifting Arrangement Plate.**

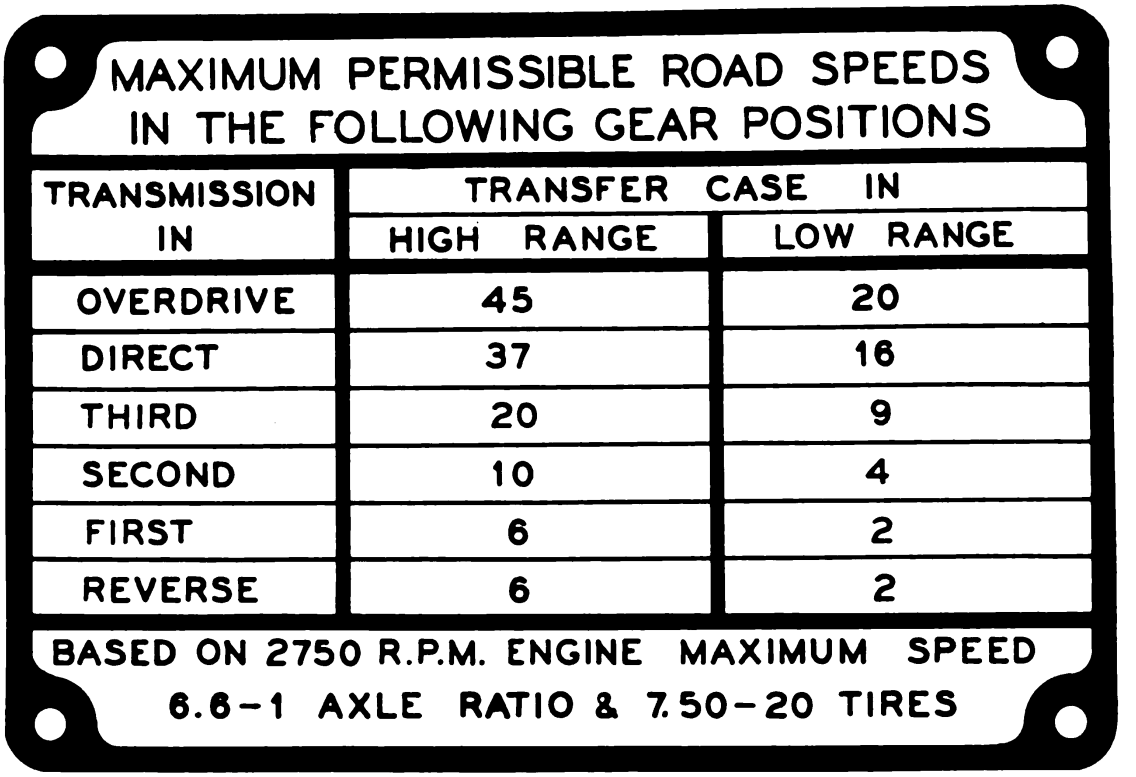
Most vehicles used by the army are equipped with interlocking devices which make it necessary to engage the front axle drive before a shift to low range transfer case can be made. As a general rule, if more power is needed, additional traction also will help move the load. Therefore, it is recommended that the front axle drive be used whenever the transfer case is in low range. This will provide the maximum power and traction and relieve the engine of any undue strain. Front axle drive should be used only when greater traction is needed, and never on dry or hard surfaced roads. Unnecessary use of front wheel drive increases wear on the front tires, contributes to misalignment of front wheels, and at normal road speeds may result in serious damage to the front differential which was intended to be used only in mud or snow, on icy pavement or on steep hills; in general, it is for use only in "off-the-road" operations.

Front axle drive can be engaged when the vehicle is in motion or at a standstill, but since it is infrequently used on most vehicles, difficulty is sometimes encountered in shifting, particularly by the inexperienced driver. Precaution must be taken never to force the gear shift lever since forcing may break the lever or part of the shifting mechanism. If resistance to the shifting lever is felt, move the vehicle slowly forward while exerting a slight pressure on the shifting lever, at the same time disengaging the clutch. Turning the wheels or driving slowly over a rough shoulder or bump until the shift is completed will sometimes make shifting easier. Any of these tricks can be safely employed and with experience most drivers have no difficulty shifting any of the levers of the vehicle.

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*Maximum and minimum speeds.* In each gear vehicles are not designed to operate above a specified maximum speed, or below a specified minimum speed. A caution plate, usually mounted on or near the dashboard, shows the maximum speed for each gear.

Excessive speeds are extremely damaging to engines. These can occur when the vehicle is rolling downhill in gear with the wheels driving the engine, particularly in the lower gear ratios. It can also occur if the vehicle governor is improperly adjusted or out of order. Driving at maximum governed speed is dangerous because it allows no reserve speed if it suddenly becomes necessary to accelerate to avoid an accident. The general rule to be applied is to keep below the maximum speed specified by the manufacturer for each gear.



MAXIMUM PERMISSIBLE ROAD SPEEDS IN THE FOLLOWING GEAR POSITIONS

| TRANSMISSION IN | TRANSFER CASE IN | |
|---|---|---|
| | HIGH RANGE | LOW RANGE |
| OVERDRIVE | 45 | 20 |
| DIRECT | 37 | 16 |
| THIRD | 20 | 9 |
| SECOND | 10 | 4 |
| FIRST | 6 | 2 |
| REVERSE | 6 | 2 |

BASED ON 2750 R.P.M. ENGINE MAXIMUM SPEED
6.6-1 AXLE RATIO & 7.50-20 TIRES

RA PD 303018

**Figure 71. Maximum Permissable Road Speeds.**

Operating at too low an engine speed, or permitting the engine to labor, overloads the engine. This is one of the most common reasons for premature failure of engine bearings. The extreme vibration set up by "lugging" an engine has serious effects on the entire power train. Shifting to a lower gear before the engine begins to labor, vibrate, and knock, is the only way to prevent overloading the engine. This is the reason that vehicles are equipped with multi-speed transmissions.

*Braking.* The useful life of brake linings depends to a great extent upon the habits of the driver. Whenever brakes are applied heat is generated and some of the lining is worn away. If braking effort is continuous, the lining may be burned. Brakes can be saved by allowing the engine to assist in slowing the vehicle by taking the foot from the accelerator and leaving the clutch engaged. The brakes are applied intermittently with gradually increasing pressure, in order to stop smoothly without sudden shock. The clutch should be left engaged until the vehicle is almost stopped. Disengage it before the engine begins to buck.

To hold the vehicle at a safe speed downhill avoid overloading the brakes. In such instances the transmission should be shifted to a lower gear. Care must be taken, however, to insure that the engine speed does not exceed the safe maximums established by the manufacturer. This can be accomplished by applying the brakes

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intermittently. In this way engine compression and brakes act together and hold the vehicle to the desired speed. In using this method of controlling vehicle speed it must be remembered that the shift to a lower gear must be made before the vehicle starts to gain momentum on the down grade. If not, it may be impossible to complete the shift and the brakes will have to be used the entire distance of the descent. Shifting to a lower gear while travelling at a speed too great for that gear ratio subjects the engine, clutch, and transmission to considerable wear resulting in mechanical failure. Do not use transmission for unnecessary braking.

## STANDARD SIGNALS

**Hand Signals.** While operating a vehicle it is frequently necessary to use signals giving orders to other units in a motor column, or to inform disinterested traffic of changes of position. Spoken commands are not always possible because of distance or noise. In order that control be exercised at all times certain hand signals are described by Army Regulations.

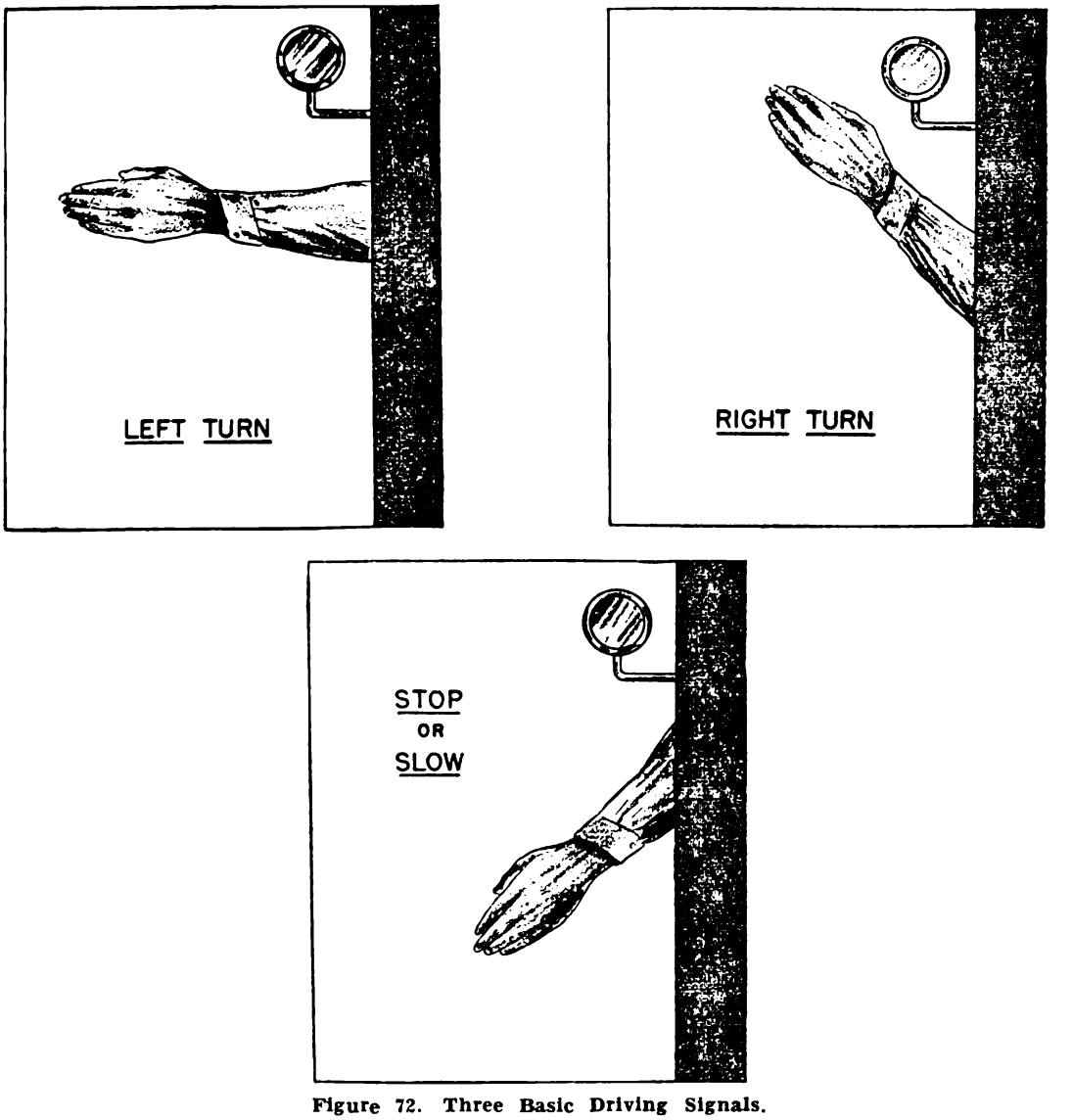



**Figure 72. Three Basic Driving Signals.**

Three basic signals are used by all drivers whether in column or driving as a single unit.

(1) Right turn—Extend left arm at an angle approximately 45 degrees above the horizontal.

(2) Left turn—Extend left arm straight out.

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(3) Stop or slow down—Left arm at an angle approximately 45 degrees below the horizontal.

In all cases, where signals are given, the width of the truck body must be kept in mind so the arm projects far enough to be seen from the rear. In addition to the above, certain signals are used exclusively for motor convoy control. It is essential that drivers and related personnel understand these thoroughly. Misunderstanding may easily lead to serious accidents and injury to personnel.

*Attention.* Extend arm full length over head; move hand slightly from side to side.

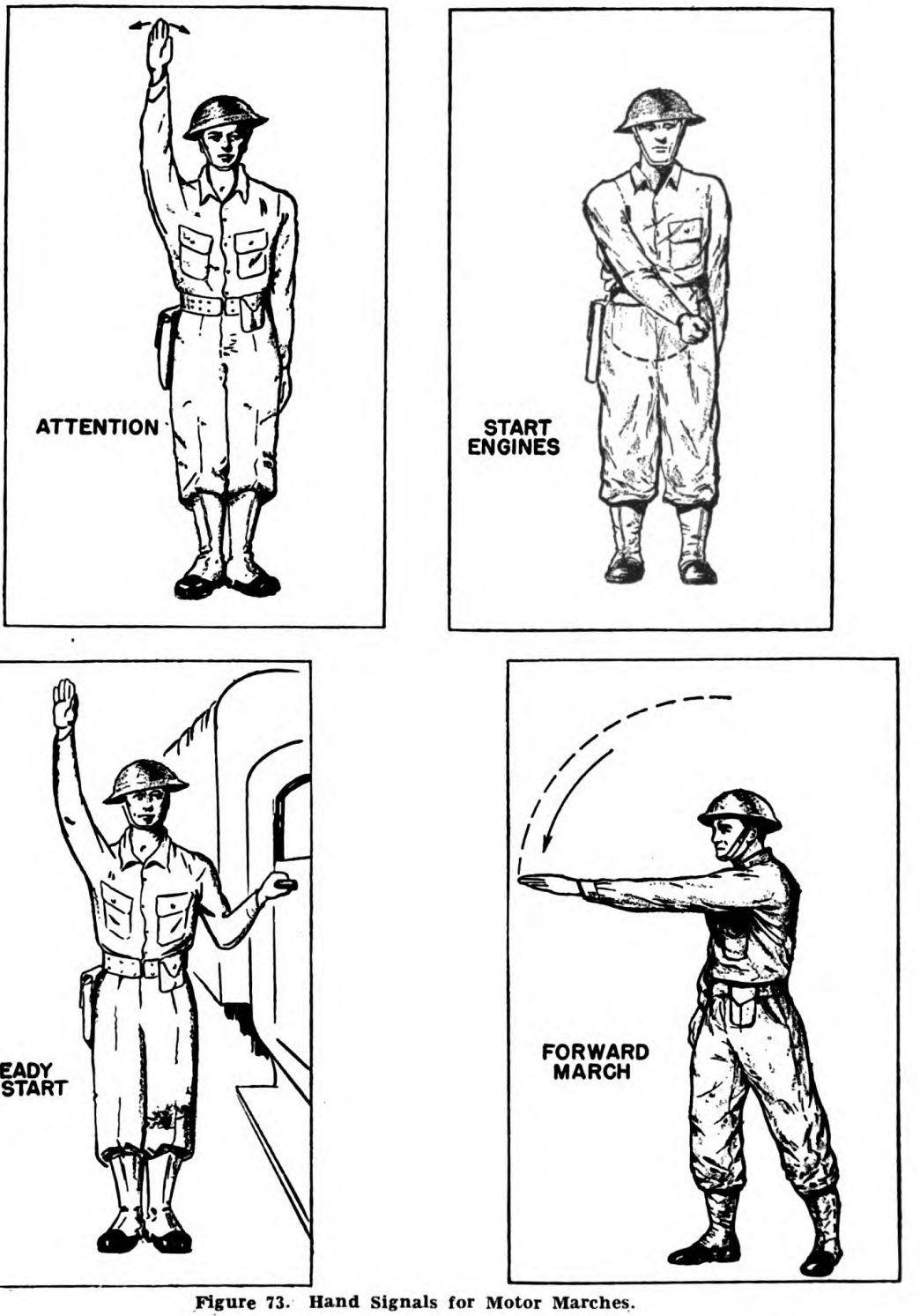



**Figure 73. Hand Signals for Motor Marches.**

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*Start engine.* Describe circles in front of body with right arm using cranking motion, fist clenched.

*Driver ready to start.* Driver faces march leader and signals *"Attention."*

*Forward march.* Raise arm as in *Attention;* lower to horizontal position in direction of march; repeat several times.

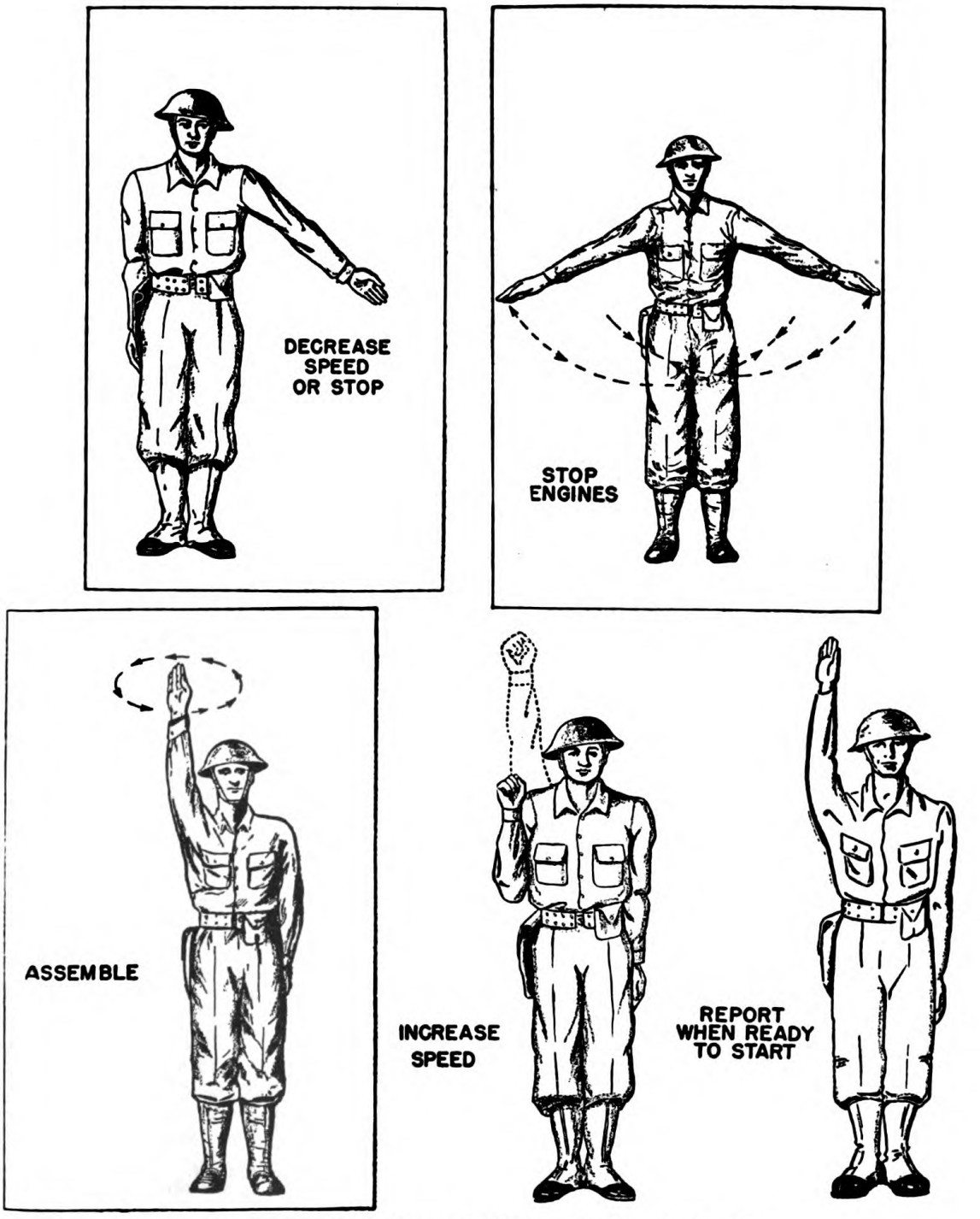



**Figure 73. Hand Signals for Motor Marches—Continued.**

*Stop engine.* Cross straight arms in front of body; move arms back and forth in sweeping arcs keeping arms stiff.

*Assemble.* Extend right arm over head as in *Attention;* move arm in large horizontal circles.

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*Increase speed.* Carry closed fist to right shoulder and thrust upward to fully extended arm; keep fist closed and repeat several times.

*Dismount.* Extend right arm to horizontal position from shoulder, palm down; return arm smartly to right side.

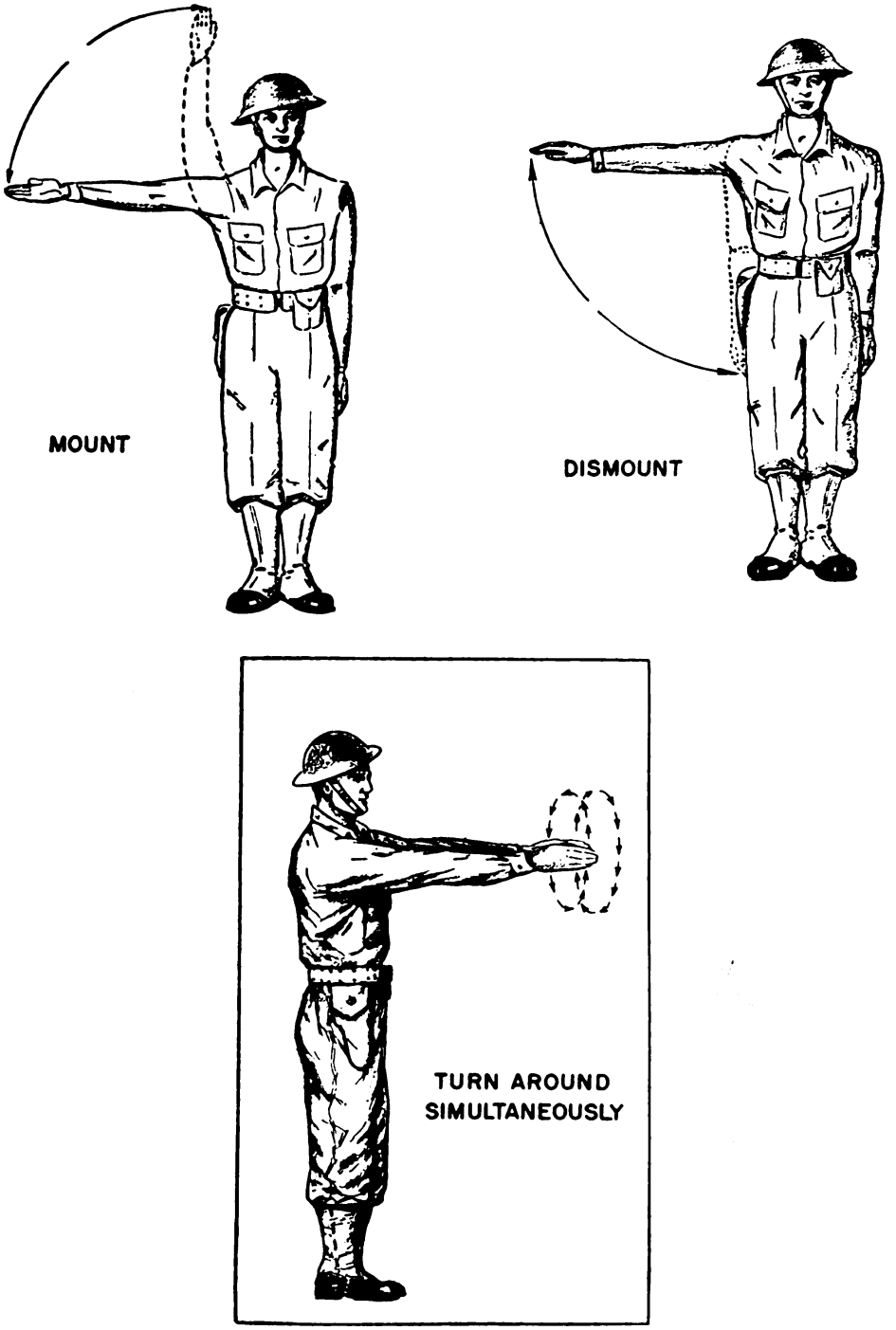



**Figure 73. Hand Signals for Motor Marches—Continued.**

*Close up.* Extend left arm horizontally to side, palm toward front; describe two foot circles.

*Open up.* Extend left arm horizontally to side, palm toward front; describe 90 degree arc downward; repeat several times.

*Pass and keep going.* Extend left arm horizontally; move hand and wrist in small circles toward front.

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*Turn around simultaneously.* Extend both arms horizontally in front of body toward drivers; describe small vertical circles; follow by signal for *Forward march* in new direction.

If given from cab extend left arm 45 degrees below horizontal; describe small circles with full arm.

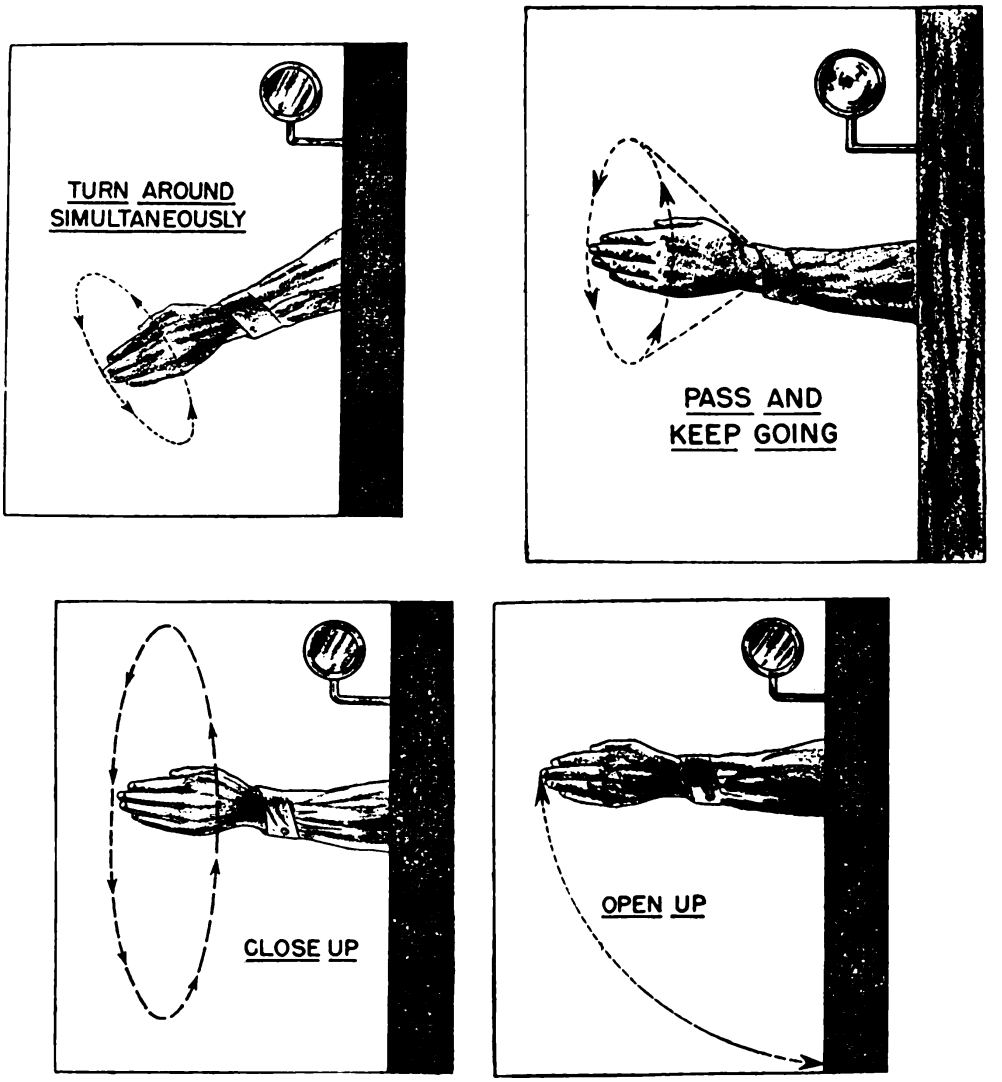



**Figure 73A. Standard Arm Signals Given From Vehicle Cab.**

*Rules of the road.* Before a student driver is fully qualified to operate his vehicle on the open road he must have an understanding of the rules that govern vehicle movements. Experience has taught that one of the principle causes of accidents is failure to adhere to simple traffic regulations. Army drivers must be versed in both "G.I." and civilian regulations. Giving proper signals is one of the most important phases of road operation from the standpoint of safety. How to indicate turns, stopping and slowing down should be covered thoroughly. Signs, signals and markings of highways must be taught carefully. The student should be made aware of the fact that rules of the road are largely common sense. A driver that loses sight of this fact and is careless is not qualified to operate a vehicle.

**Actual Practice and Convoys.** When the student has demonstrated that he is familiar with the elements of good driving, he is ready for road operation. The skillful instructor will select practice routes which include varied driving experiences, one presenting situations that will require student drivers to traverse hills, curves and intersections, observe traffic signs, back and park his vehicle, use of

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signals, watch disinterested traffic, and in general experience all normal driving conditions. (See fig. 75.) It should be kept in mind, however, that the student is not skilled. Too complex a situation may cause confusion and accidents. In all cases, an instructor should be with the student to offer suggestion and constructive criticism; a novice alone in a vehicle is a hazard. When proficiency has been demonstrated final performance should be made in city traffic, but only when the student has proved his capabilities. Instructors accompanying students should have check lists to record reactions and performance. Several types of check lists

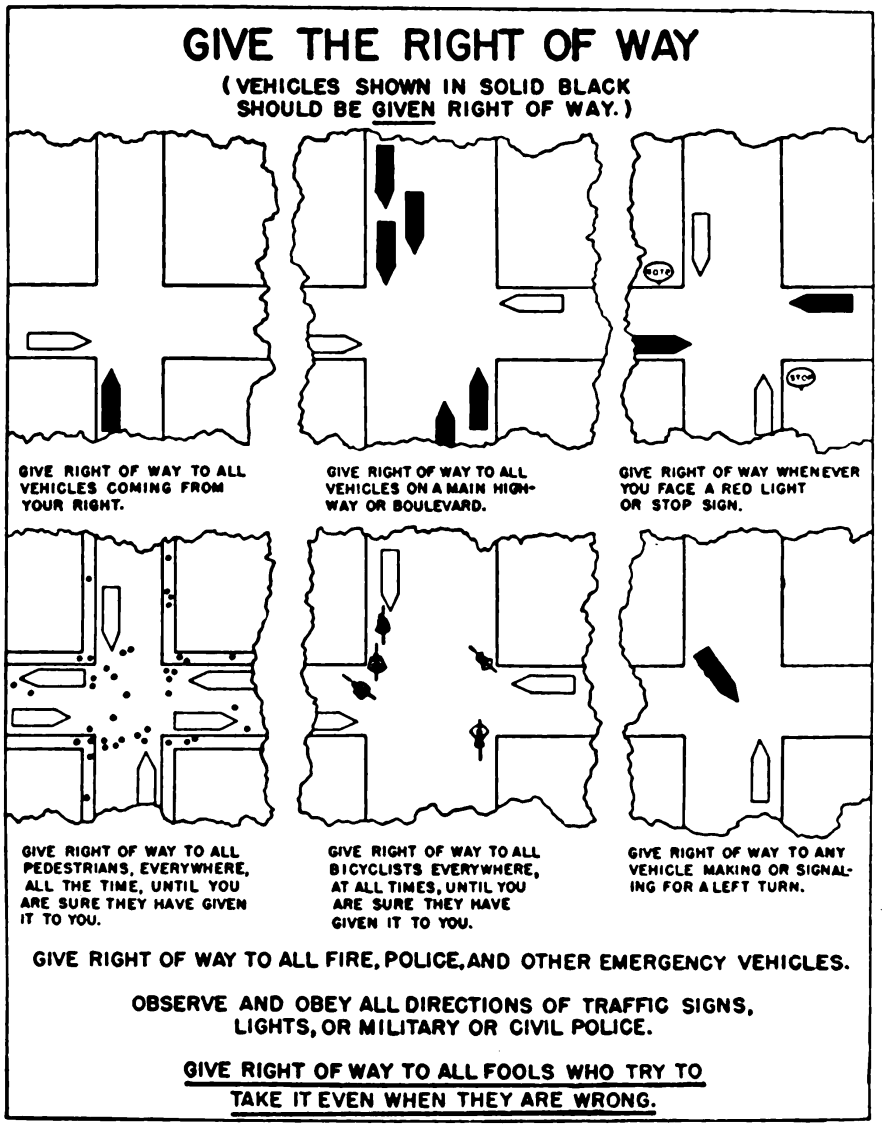
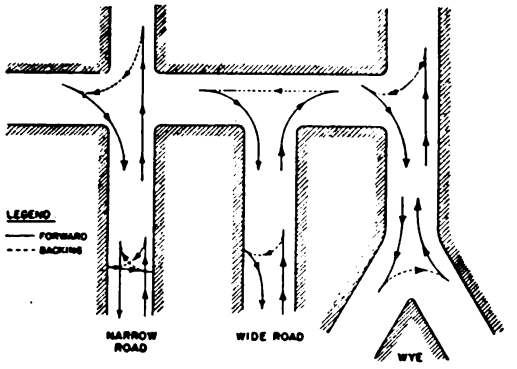



**Figure 74. Give the Right of Way.**

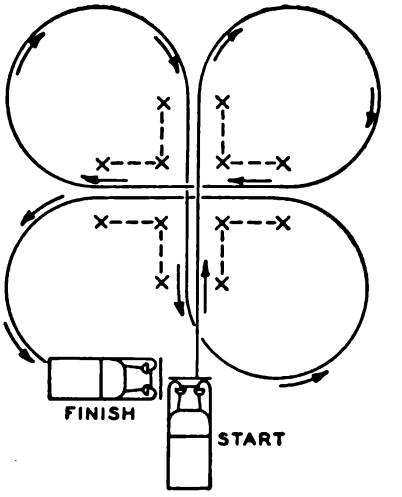
are suggested in TM 21-300, Driver Selection and Training, Par. 195. Following the training as a solo driver, experience in convoy operation should be given. Even though the student is a satisfactory operator as an individual his training must include certain factors governing motor marches. Such training should cover:

1. Responsibilities of the driver in march order
2. Safety precautions
3. Right of way
4. Guides and guards
5. Spacing of vehicles
6. Road procedures

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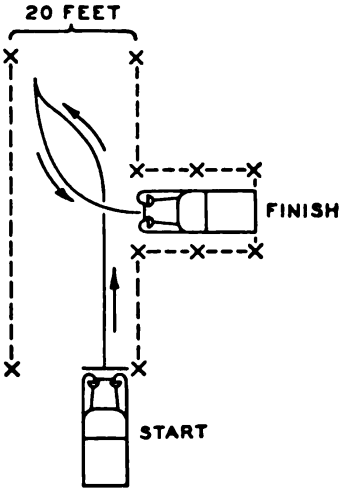



Proper method of executing Y-turn when interfering traffic is blocked off.



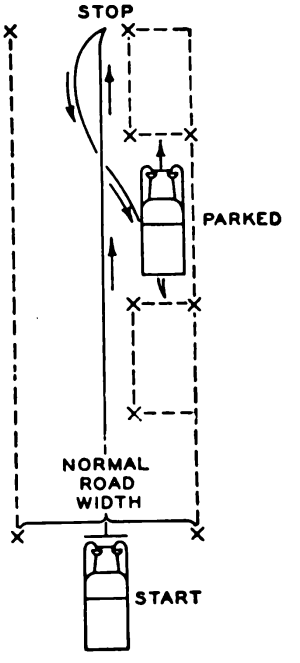

Reverse turning course.

(The figure should be symmetrical, with the stakes placed to allow a side clearance of approximately 18 inches on the turn. Actual placement of the stakes should be determined from the performance of a pilot vehicle, since the total space required for the turn depends upon the type of vehicle used.)




Backing course.

(The figure should be symmetrical, with the stakes placed to allow an over-all side clearance of approximately 18 inches at the finish. The entering lane should be wide enough to permit the movement if it is executed correctly.)




Parking course.

(Stakes should be placed so that when parked the vehicle will have an over-all longitudinal clearance of approximately 10 feet and a lateral clearance of approximately 3 feet.)

**Figure 75. Situations Included in Driving Course.**

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Standard Form No. 26
Approved by the President
June 10, 1927

## DRIVER'S REPORT—ACCIDENT
### MOTOR TRANSPORTATION

### INSTRUCTIONS TO DRIVERS

**In case of injury to person or damage to property:**

**A. Stop car and render such assistance as may be needed.**
**B. Fill out this form, ON THE SPOT, so far as possible.**
**C. Deliver this report promptly to your immediate superior.**

**Failure to observe these instructions will result in disciplinary action.**

1. Name of Government driver: .....
2. Stationed at .....
3. Make and type of Government vehicle .....
4. Service number .....
5. Name and address of owner of other vehicle (or owner of property damaged) .....
6. Name and address of driver of other vehicle .....
7. License of other vehicle: State ..... No. .....
8. Place of accident: City ..... Street .....

10—1810

9. Date of accident ....., 19..... Hour ..... M.
10. Names and addresses of persons injured; nature of injuries: .....
11. Describe damage to Government vehicle .....
12. Describe damage to privately owned vehicle, or other property: .....
13. What signal was given by each driver prior to accident? .....
14. State condition of light, weather, and roadway: .....
15. Explain how accident happened: .....
16. Label streets and indicate measurements; show the position of each vehicle at the time of the accident and show by dotted lines the course of each vehicle just before and just after the collision.
17. Was an investigation made by a policeman (civil or military)? ..... If so, state
Name ..... No. .....
Precinct or station .....
18. Names and addresses of persons other than driver in Government car: .....
19. Names and addresses of other witnesses: .....

.....
(Signature of driver)

I certify that the above report was delivered to me on the ..... day of ....., 19....., at ..... o'clock .....

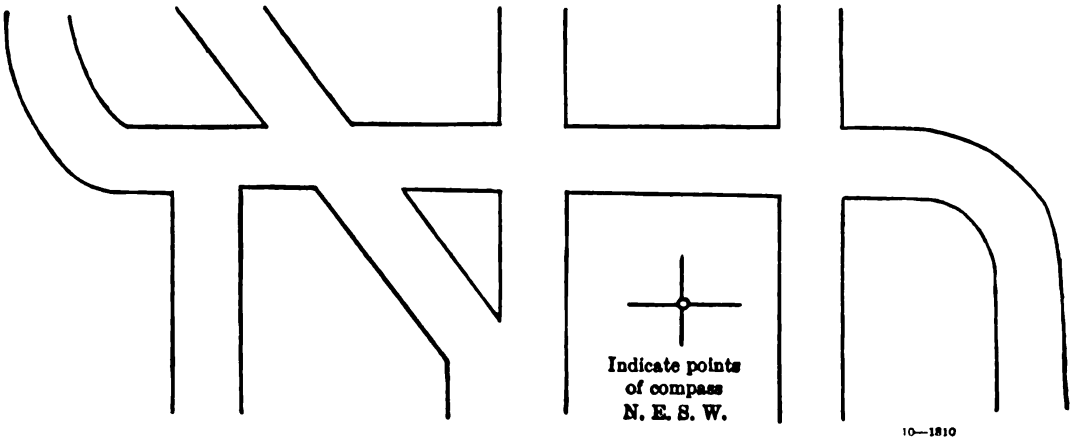
.....
(Signature of officer in charge)

.....
(Official title)

.....
(Government department or establishment)

**NOTE.—This report should be attached to report of investigating Officer.**

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**Figure 76.**

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7. Types of marches
8. Blackout marches
9. Convoy signals.

*Miscellaneous.* To complete the operation training a number of related fields should be included in the course. Merely driving a vehicle is not the ultimate of a successful driver. He must understand thoroughly such subjects as loads and loading, tarpaulins, rope tying, operation of accessories, transportation of personnel, map reading and the care of tires. In addition he must understand fully the use of any records and paper work required. In the event of an accident he will fill out Driver's Accident Report, Standard Form No. 26, see fig. 76. The importance of submitting names of all witnesses and giving full and correct details concerning an accident cannot be overemphasized. Considerable confusion and delay can result when a driver does not provide all pertinent information concerning an accident. Drivers are responsible for having an Accident Report in the vehicle at all times.

Next, the student should be carefully trained in the use of the Driver's Trip

**NOTES**

1. To be issued only after strict and practical examination.
2. Permit will be authenticated by commissioned officer immediately after test for each type of vehicle concerned.
3. Where testing facilities do not permit cross-country driving, permit will be marked "limited" after each type of vehicle concerned.
4. List accidents below. If more than three are charged to the permit holder, his driving ability and mental attitude should be investigated before issuance of new permit.

**RECORD OF ACCIDENTS**

(List all in which permit holder is involved)

Date ---------- (1)
Responsibility and cause ----------
Estimated cost of damages ----------
Officer's initials ----------

Date ---------- (2)
Responsibility and cause ----------
Estimated cost of damages ----------
Officer's initials ----------

Date ---------- (3)
Responsibility and cause ----------
Estimated cost of damages ----------
Officer's initials ----------

**MOTOR VEHICLE OPERATOR'S**

# PERMIT

Valid { with / without } glasses

---

(OPERATOR'S A. S. N.)

U. S. GOVERNMENT PRINTING OFFICE 16—22236-1

**Figure 77. Motor Vehicle Operators Permit (Front).**

Ticket and Preventive Maintenance service record, Form W.D. Form No. 48. Drivers must understand the full use of this form. They must realize the importance of having all information accurate and reliable. Form 48 is the case history of the vehicle while it is in their hands; if they are not conscientious in its use, malfunctions that develop may remain unnoticed and a defective vehicle will operate on the highway.

The Motor Vehicle Operators Permit O.O. Form No. 7360. (Old QMC Form No. 228) should be carefully discussed.

These permits are evidence of faith on the part of the army that the driver is competent to handle various types of vehicles specified on the form. All accidents will be recorded on these permits and the permit will be immediately revoked when an accident or other cause so warrants. When the driver understands the use of all three forms, his training has been completed.

**Final Examination.** Three tests are suggested to ascertain the qualifications of

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students; an information test, an inspection test, and a road test. They should be conducted under the direction of a qualified officer.

*Driver Information Test.* This test is a standard form of objective examination and deals with all phases of the course. Its purpose is to determine the amount of information absorbed by the student in addition to his acquired practical skills.

*Vehicle Inspection Test.* A number of trucks are purposely made defective, usually with five or six malfunctions and five or six missing items such as a burned out fuse, low oil pressure, low tire pressure, fire extinguisher discharged, loose fan belt or a missing windshield wiper. The person to be tested is instructed to inspect the vehicle for "Before Operation Service." All defects will be discovered if the student is careful. Too many omissions should be cause for failure on the test.

O. O. Form No. 7360
(Approved Dec. 7, 1942)
(Old Q. M. C. Form No. 228)

----------, 19------
(Date of issue)

----------
(Operator's signature)

I CERTIFY THAT ----------
(Name and rank)

has demonstrated proficiency in driving (par. 16, A/R 850–15) the types of vehicles listed below as per signed authentication.

| TYPE VEHICLE | AUTHENTICATION (Signed by a commissioned officer) |
|---|---|
| Car, halftrack | |
| Car, passenger | |
| Motorcycle | |
| Tank, heavy | |
| Tank, light | |
| Tank, medium | |
| Tractor | |
| Truck-tractor (semitrailer) | |
| Trucks, cargo, ¼–¾-ton | |
| Trucks, cargo, 1½–2½-ton | |
| Trucks, cargo, 4-ton and larger | |
| Trucks, amphibian (all) | |
| Vehicle, wheeled, combat | |
| Special | |

16—22230-1

**Figure 78. Motor Vehicle Operators Permit (Inside).**

*Road Test.* A prerequisite for this test is a carefully chosen test route offering as many driving situations as possible. For general driving a 2½ ton truck is used, since it is the vehicle most widely driven in the army. The first part of the test course should be relatively straight and on a hard road so the driver can become familiar with his vehicle. As the test progresses, errors of performance should be recorded on the test check list. During the course of the test experiences covering the following situations are included:

1. Starting and stopping
2. Use of controls and hand signals

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3. Driving on hills, in mud, and in traffic
4. Parking and backing
5. Steering
6. Road signs.

To determine the final rating, combine the ratings of all three tests. The Road Test, however, should be given the largest measure of importance in deciding the student's abilities. After a student has completed the military motor vehicle operator's course he should be able to handle not only a military vehicle skillfully, but also should know the pertinent Army regulations and practices and be able to perform authorized preventive maintenance service. If at any time there is cause for doubt as to the ability of any given student, he should be disqualified. Only the man who has proved his ability and is alert to his responsibilities is a satisfactory vehicle operator.

## TYPICAL PROGRAM FOR DRIVER TRAINING (40 HOURS)

### SUBJECT AND METHOD OF INSTRUCTION

| | | |
|---|---|---|
| **Introduction** | | **Reference** |
| 30 min. | A. Types, characteristics, and uses of army wheeled vehicles: | TM 21-300<br>TM 10-460 |
| | **B. Driver's** Duties; Preventive Maintenance | TM 9-2810 |
| | 1. Safe and efficient operation | FM 25-10 |
| 30 min. | 2. P.M.; Definition, explanation, importance. | TM 9-2800 |
| | C. Driver's Equipment (always in the vehicle) | |
| | 1. Trip Ticket: purpose and how used. | |
| | 2. Accident Report: when and how used: driver's action when accident occurs. | |
| 2½ hrs. | 3. Motor vehicle operator's permit. | |
| | a. Qualifications | |
| | b. Issuance of permits, responsibility of issuing personnel and permit holder | |
| | 4. First echelon tool set | |
| 30 min. | a. Contents | |
| | b. Care and use of the tools | |

**Engines and Engine Accessories**

A. Basic principles of engine operation
1. Four stroke principle
2. Piston, connecting rod, crankshaft action
3. Valve action (briefly, showing valves only)

B. Fuel system
1. Fuel tank, lines, fuel strainer, fuel pump, choke, carburetor (location and purpose only)
2. Path of fuel flow
3. Driver checks and P.M.
4. Minor malfunctions
5. Safety precautions in the handling of fuel

C. Cooling system
1. Principle of air/liquid cooling system
2. Circulation of liquid and air
3. Function of thermostat and location
4. Driver checks and P.M.

D. Lubrication system
1. Purpose and importance of adequate lubrication
2. Seasonal grades of engine oil according to S.A.E. numbers
3. Seasonal grades of gear oil according to S.A.E. numbers
4. Lubrication P.M.: Engine oil level, oil pressure, changing oil, leaks, servicing breather cap

E. Engine operation
1. Before operation inspection of all items (2c, below) covered up to this point
2. Engine starting and warm-up procedure
a. Proper use of starter, throttle, choke

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b. Instrument readings
c. Review of use of light switch for all driving conditions

**The Power Train**

A. Clutch—Location on the vehicle
1. Purpose and function
2. Proper use, clutch abuses and results of same, *e.g.*, riding clutch pedal, intentional clutch slipping
3. Double clutching; why necessary, steps involved in shifting up and down

B. Transmission—Location on the vehicle
1. Purpose and basic function
2. Proper gear selection according to conditions of operation
3. Driver checks and P.M.: lubricant level, changing oil, leaks, noise, tightness in transmission mounting

C. Transfer Case—Location on vehicle
1. Purpose and basic function
2. Proper selection of ranges according to conditions of operation; precautions in shifting
3. Driver checks and P.M.: Lubricant level, changing oil, leaks, noise, tightness in mounting, vents

D. Front Axle Drive
1. Purpose, when used
2. Shifting precautions
3. Driver checks and P.M.: Lubricant level, changing oil, leaks, noise, wheel shimmy, vents and rear differential

E. Inspection and P.M. of above units by all students

**Preliminary Driving Instruction.**

1. Vehicle operation
a. Safety precautions
b. Starting, stopping, shifting gears
c. Backing and turning
d. After operation service (supervised)

**Preventive Maintenance for Tires and Batteries.**

A. Tire P.M. and conservation
1. Proper inflation
2. Proper mounting, matching, and changing
3. Tire inspection

B. Storage Batteries
1. Location in vehicles
2. Battery P.M.
a. Electrolyte level
b. Hydrometer readings
c. Cleaning and servicing
d. Installing batteries: precautions, terminal identification

C. Driving Instructions
1. Before Operation Service (supervised)
2. Driving on the road
a. Starting, stopping, shifting, turning
3. Driving off the road
a. Use of front wheel drive and low range transfer case
b. Steering over rough terrain
4. Use of front winch; towing of vehicles
a. Winch and cable P.M.
b. Winch operation
c. Towing vehicles: safety precautions and methods of hitching, dangers of pushing vehicles and why prohibited
5. After Operation Service (supervised)

**Convoy Driving—(100 miles recommended)**

A. Weekly inspection of all vehicles to be used (supervised)
B. Convoy signals
C. Maintaining Interval and speeds

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1. Level road
2. Hills

D. At Halt Service, After Operation Service (supervised)

**Final Examination**

A. Driver Information Test
B. Vehicle Inspection Test
C. Road Test

## MOTOR MARCHES

**Types of Motor Marches.** The three main types of motor marches are a close column, open column and infiltration. Each has its distinctive characteristics.

A close column provides maximum control and has the shortest time length. Too, it makes maximum use of roads. However it provides no passive protection against air or ground attack. Further, no secrecy is afforded in daylight.

An open column offers a lesser degree of control than a close column but greater than is offered in the infiltration type. The open column has a greater time length than the close column, thereby tending to overcome accordion action. Some passive protection against air attack is provided.

In the infiltration type of motor movement each vehicle is a unit. The overall picture is one of normal traffic. Because of this, the maximum degree of secrecy and air protection is obtained. On the other hand, there is little control that can be exercised; the time length is short and there is a minimum use of roads. Furthermore, it is the most difficult type of movement to execute properly.

It is probable that, in areas in which the enemy is active in the air, close column will be widely employed on dark nights, and open column by day and on moonlight nights. If secrecy and maximum passive air protection are essential, daylight moves by infiltration are indicated. In areas where cross traffic is heavy, infiltration causes the least interference.

**Definition of Terms.** *Advance Party.* A party sent in advance of a troop movement to reconnoiter, repair, mark the route and to prepare for the reception of the troops at their destination.

*Column.* All the elements of a unit using a single route for a single movement of troops.

*Close Column.* A method of motor movement in which vehicles are regularly spaced at minimum safe driving distances. These distances, measured in yards, are approximately twice the speed in miles per hour.

*Control Officer.* An officer who rides at the head of a column or element thereof for the purpose of regulating the rate of march and maintaining the proper direction.

*Control Point.* Any point along the route of march used to check the progress of a movement and to disseminate information necessary for the successful completion of the march.

*Detrucking Area or Point.* An area where trucks are dispersed for the purpose of unloading troops or supplies, or the point at which the head of a truck column halts for the purpose of unloading troops or supplies.

*Distance.* The space from the rear of one vehicle (including towed load, if any). to the front of the next vehicle in column.

*Entrucking Area or Point— (EA or EP).* An area where trucks are dispersed for the purpose of loading troops or supplies or the point at which the head of a column halts for the purpose of loading troops or supplies.

*Guard.* An individual posted at a danger point (RR crossing, or highway junction) on the route of march to prevent accidents.

*Guide.* An individual who leads or directs a vehicle over a predetermined route to a selected locality.

*Initial Point (IP).* A point at which a column is formed for movement by the successive arrival and passage of its subdivisions.

*Marker.* A distinctive sign or notice placed at a critical location to indicate a position, direction, procedure, or obstacle.

*Open Column.* A method of motor movement in which the vehicles are regularly spaced with greater distance than in close column. Densities prescribed may vary from ten to twenty-four vehicles per mile.

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*Quartering Group.* A major subdivision of an advance party which prepares a bivouac area for occupation.

*Rate of March.* The average speed of a column over a period of time, including short periodic halts.

*Reconnaissance Section.* A part of the route group charged with the responsibility of obtaining pertinent information concerning the route or routes to be followed.

*Regulating Point (RP).* The point at which incoming motor transport is separated into groups and directed to the locations at which entrucking or detrucking is to take place.

*Road Space.* The length of an element on the road from head to tail.

*Time Distance.* The time that it takes the head of a column to move from one place to another.

*Time Interval.* The interval of time between individual vehicles, units, serials, or columns. It is measured from the tail of the forward unit to the head of the succeeding unit.

*Time Length.* The time that is required for a column or an element thereof to pass a given point.

*Traffic Control Section.* A part of the route group which provides for maintenance of direction by placing of guides and markers, and for protection by posting guards at dangerous points.

*Trail Officer.* The officer who inspects and disposes of vehicle casualties and supervises the recovery of guides, guards and markers. He rides at the rear of the column in the trail car.

**March Technique.** *March Discipline.* March discipline is indispensable to the control of a march column. The specific objective of march discipline is to insure intelligent cooperation and effective teamwork on the part of march personnel. Such cooperation and teamwork can only be obtained by constant and thorough supervision by every officer and noncommissioned officer, adequate training, considerable actual experience in marching and meticulous attention to the following details:

(1) Immediate and effective response to all signals and orders.

(2) Strict obedience to traffic regulations, rules of the road, and instructions of traffic personnel.

(3) Effective use of cover, concealment, dispersion, radio silence, blackout precautions, and other protective measures.

(4) Prompt relaying of visual signals.

(5) Correct speeds and headways.

(6) Proper care of transport and equipment.

(7) Observance of rules of march hygiene.

**Maintenance of Distance and Intervals.** *General.* The success or failure of any planned motor movement is, in a large measure, dependent upon the drivers. Training designed to improve motor movements should include considerable time devoted to development of driver ability to judge accurately both distances and intervals and to maintain prescribed speeds. Safety precautions as well as time and space calculations, are predicated on drivers maintaining prescribed distances and intervals. Problems involved in maintaining distances and intervals vary in different methods of movements.

*Close Column.* In this type of movement the distances between vehicles are approximately equal in yards to twice the speed in miles per hour. Proper distances are achieved as a result of drivers being trained to follow preceding vehicles at minimum safe driving distances.

*Open Column.* This type of movement permits of numerous expedients for measuring distances (measured in yards) or intervals (measured in time). It is theoretically possible for the motor column to move at a constant speed.

In practice, however, a column of any length will cover simultaneously many diverse stretches of road and accidents of the terrain such as hills, sharp curves and varying road surfaces. The result is that different parts of the column, regardless of traffic conditions and vehicle performance characteristics, move simultaneously and at different speeds. This produces accordion action and on a long hill or bad stretch of road serious traffic conditions may result. On the

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near side of such a condition, a long and constantly increasing mass of vehicles will accumulate; and on the far side, the column will be elongated. Three commonly used methods of maintaining proper intervals or distances are indicated below:

1. Estimation of distances by drivers. Designating operating and minimum distances between vehicles in a column is one method to overcome the effects of accordion action caused by traffic obstacles. Drivers maintain the prescribed operating distance. When the column slows down they close to minimum distance. Fifty yards is considered the least minimum distance that should be prescribed.

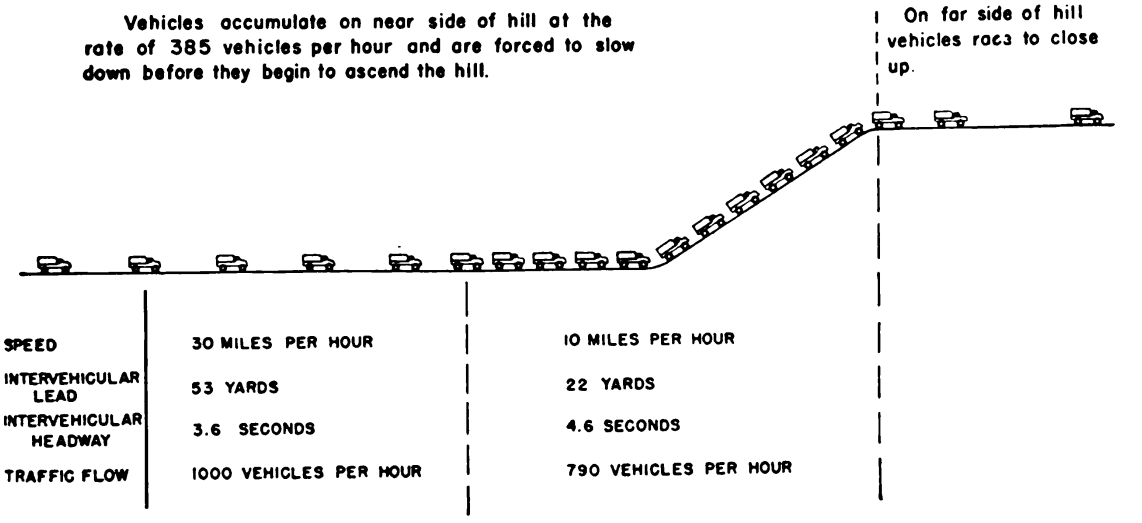



**Figure 78. Effect of Bottleneck on a Close Column.**

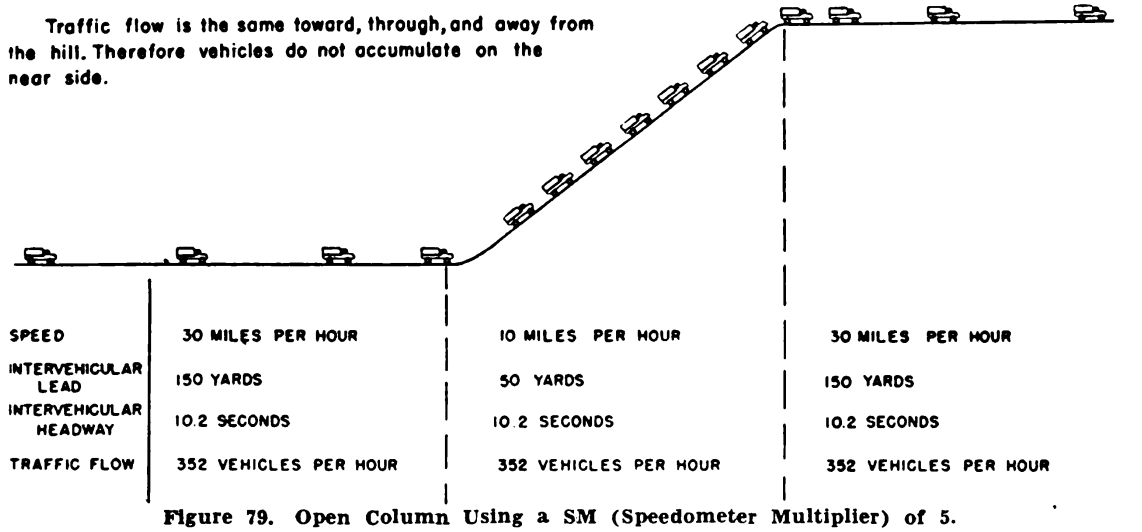



**Figure 79. Open Column Using a SM (Speedometer Multiplier) of 5.**

2. Estimation of intervals by drivers. A predetermined time interval to be maintained between vehicles may be given drivers. Such time intervals, if closely followed, automatically decrease distances between vehicles when the column slows down and increase such distances when the prescribed rate of movement is resumed. Four counts in the cadence of quick time are equivalent to two seconds in time. The numbers "1000" "2000" etc. spoken at a deliberate rate are each approximately equivalent to the lapse of one second in time. When a vehicle clears a prominent point on the route, the following driver may apply either of the above methods of counting. At the completion of the count, his vehicle will reach that point if the desired interval is being maintained.

3. Use of speedometer multiplier. A speedometer multiplier (SM) may be pre-

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scribed. Assuming a reconnaissance report indicates that 15 miles per hour will be the slowest speed necessary during a planned movement, and that the tactical situation dictates a minimum of 90 yards distance between vehicles during the movement, dividing 90 by 15 provides a speedometer multiplier of 6. Each driver will be expected to follow the vehicles ahead at a distance in yards equal to 6 times the speedometer reading in miles. Thus, at a speed of 25 mph, a distance of 150 yards (25x6) should be maintained between vehicles.

*Advance Party.* It is important that some type of advance party precede every troop movement. Preferably it should precede the column by at least two or three hours. The composition and duties of an advance party will vary with the type and conditions of the movement. The work of the advance party divides itself into two general categories. The route group concerns itself with tasks which are found along the route of march. The quartering group deals with problems at the destination.

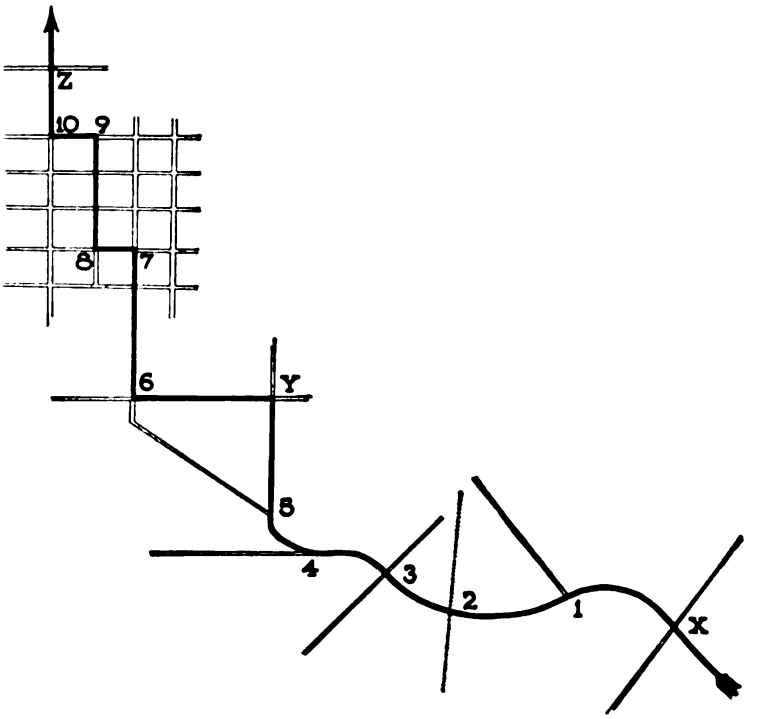



**Figure 80. Posting Escort Personnel.**

*Route group.* The route group is divided into the following three sections. Each deals with tasks to be accomplished along the route.

1. The reconnaissance section. This section, usually commanded by an officer, is charged with securing information concerning the route or routes to be travelled. The type of information and the amount of detail depend upon the availability of time and personnel. For planning purposes it is assumed that the reconnaissance section will average 15 miles per hour while performing its duties. Generally, the following information will be required:

A. Location of route or routes.

B. Time distance between various points.

C. Specific information on roads and bridges.

D. An estimate of engineer or pioneer work necessary and probable time required for its completion.

E. Location and characteristics of alternate routes which can be used to by-pass congested areas, possible ambush sites, road blocks, or other conceivable bottlenecks

F. Information on sites for halts, turn-roads, bivouacs and assembly areas, regulating points and other terminal facilities.

2. The pioneer section. This section is charged with accomplishing necessary road repairs along the route to facilitate the movement of the column.

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3. The traffic control section. This section, commanded by an officer or qualified noncommissioned officer, insures maintenance of direction and safeguards the column against traffic accidents and interference. Column direction is accomplished by stationing guides, or using appropriate markers, at locations where the column might lose direction. See fig. 80. The number of individuals required for traffic control will depend upon the amount of control established by higher echelon and the particular traffic problems presented in each movement. A guard should be established at each railroad crossing, and at each junction with, or crossing of, an important highway along the route of march.

The task of maintaining direction and traffic control, where both are necessary, usually can be performed by one individual at a single point.

Personnel placed along the route of march as guides and guards rejoin the unit. Arrangements must be made for picking up the guides, guards and markers. This may be accomplished in one of two ways. The first is to place the necessary number of empty vehicles in charge of the trail officer at the tail of the column. A second method is to send one empty vehicle with the party which posts the guides and guards and to leave this vehicle at the point where the first man is posted. The next vehicle emptied is left at the post of the last man to leave it. The process is continued until all personnel have been posted. When the tail of the column passes the first post, the guide or guard gets into the vehicle which was left with him and follows the column picking up personnel until the vehicle is full. This procedure is continued until the entire section has been picked up.

*The Quartering Group.* The duties of the quartering group include the locating of the area to be occupied by the unit upon completion of the march, inspection of that area from the viewpoint of security, sanitation and availability of facilities, suballotment to subordinate units and preparations to guide the units into their allotted areas upon arrival.

*March Order.* The march order should be issued in sufficient time to allow subordinates to complete their preparations for the march. While it is being prepared, subordinate commanders, acting on information contained in the warning order, are able to accomplish most of the preparations for the movement. The amount of detail given in the march order will depend on the state of training of the unit, the contents of standing operating procedure, and the complexity of the movement. Personnel activities at the regulating point are under the supervision of an officer. He is assisted by such enlisted personnel (noncommissioned officers and guides) as are required. When the trucks arrive in such a formation that each driver can follow the truck in front, the best method of distribution is usually by the use of guides. The column is halted upon the arrival of the first truck at the regulating point and a guide from the first entrucking area or point is placed aboard. The column moves forward under his guidance until the number of trucks to be sent to that entrucking area has passed. The next truck is halted and a guide from the second entrucking area or point is placed on board. The process is continued until all trucks have been disposed of as planned. When this method is used, about two minutes delay will usually be necessary at the regulating point for each group.

Entrucking and detrucking are often the critical operations in a motor movement. Detailed plans are made, when time permits, to insure that these operations proceed in an expeditious and orderly manner. Troops are prepared for entrucking by assigning specified groups to specified trucks. This may be done in a number of ways. The entire unit may be lined up at the entrucking point and counted off in groups equal to the capacity of the vehicles. Each commander who has responsibility for entrucking is informed of the location of the entrucking area or point and the number of vehicles allotted to him. He then informs himself in advance of the probable location for entrucking of each vehicle allotted to his unit and takes the necessary steps to have the troops in position at the time entrucking is to begin. In all motor movements the tactical unity of battalions, companies, platoons, and even squads should be maintained whenever practicable.

When organic vehicles are to be introduced into the column at the entrucking points, each entrucking group commander is responsible that the vehicles are loaded and properly placed to begin their movement to the initial point at the prescribed time. Coordination between the initial point and entrucking points or areas can be effected by use of two-way voice radios, messengers or other convenient means.

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910th Field Artillery
Fort Meade, Md.,
7 April 19__, 1:00 PM

FO 93
Map: Strip map (Annex No. 1).

1. *a.* No change in enemy situation.

*b.* The THIRD ARMY is concentrating in the CUMBERLAND VALLEY.

2. *a.* This regiment will join the THIRD ARMY by marching to a concealed bivouac area immediately southeast of WAYNESBORO, starting after 8:00 AM, 8 April.

*b.* Route: See strip map (Annex No. 1).

*c.* Troops (in order of march):

(1) Reconnaissance, pioneer, and quartering party:
Captain C, commanding.
Lieutenant B with 4 men and 2 reconnaissance cars from Headquarters Battery.
Lieutenant D, one man from each battery, and one truck from 2d Battalion Headquarters Battery.
Lieutenant E with 12 men and 2 trucks (loaded with pioneer tools and bridge timber) from 1st Battalion Headquarters Battery.

(2) Traffic escort:
Lieutenant F, 3 NCOs, 30 privates, and 7 vehicles from Headquarters Battery.

(3) First serial:
Headquarters and Headquarters Battery (less detachments).
First Battalion (less detachments).

(4) Second serial:
Second Battalion (less detachments).
Medical Detachment.
Regimental Supply and Maintenance Platoon (less detachment).

(5) Clean-up party:
Lieutenant G, 6 men, and 1 truck, all from Regimental Supply and Maintenance Platoon.

3. *a.* Reconnaissance, pioneer, and quartering party will leave by 4:00 PM (today) 7 April.

*b.* Traffic escort will move out at 7:00 AM (tomorrow) 8 April.

*c.* Conduct of the march:

(1) See march table (Annex No. 2).

(2) Between EMMITSBURG AND ROUZERVILLE blackout lights will be used. Beyond ROUZERVILLE no lights whatsoever will be permitted.

4. See Adm O 37 (Annex No. 3).

5. *a.* The control car of the second serial will relay radio messages when necessary between the column control car and the column trail car.

*b.* (1) Three long blasts of whistle, horn, or klaxon, repeated several times, will be the warning signal for an air or mechanized attack.

(2) A series of short horn blasts given by any control car will signal the "all clear."

*c.* Messages to the column control car.

By order of Colonel A:

X
*Lt. Col., 910th FA*
Executive.

**Figure 81. Example of March Order.**

OFFICIAL:
Y
*Capt., 910th FA*
S–3
Annexes:
No. 1—Strip map
No. 2—March table
No. 3—Administrative order #37
Distribution: A
2 copies to THIRD ARMY

NOTE.—The order as given above is more complete than is necessary when a well-developed "Standing operating procedure" is in use.

**Figure 82. Annexes To a March Order.**

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*Control During Movement.* Control during a movement by motor is exercised principally by serial commanders and by personnel stationed at selected points along the route. Commanders, including those of serials and march units, have no fixed posts in the column but go wherever they can best observe the movement and exercise control. Usually each commander moves near the head of the element for which he is responsible in order to obtain early information of any emergency that may arise and to take suitable action.

Detailed control of the main column is usually delegated to the column control officer. He regulates the rate of march and maintains direction of his unit, verifying the location of guides and markers at points where they are required, and using other control personnel as necessary.

A trail officer, usually the maintenance officer, moves at the tail of the motor elements. He makes decisions as to the disposition of disabled vehicles after consulatation with any maintenance personnel who may be at the vehicles. He normally will direct that such vehicles be towed, or that they be temporarily or permanently abandoned and their loads transferred to other vehicles. The trail officer also is responsible for the picking up of personnel stationed along the route.

*Traffic Maps.* A type of map used primarily for traffic purposes is indicated in the following. Traffic information presented in graphic form through use of symbols may include the following:

1. Road net.
2. Identification of traffic terminals, cities, towns, intersections, traffic establishments and important terrain features.
3. Designation and numbering of specific routes.
4. Road data.
5. Direction of traffic movements.
6. Strip map. Strip maps are particularly useful to commanders of smaller units in organizational column control. They are used to give a schematic picture of a route of march. Strip maps should be reproduced in quantity and supplied to all personnel concerned. A strip map is especially needed when drivers operate independently or when distances between vehicles are so large that individual vehicles are liable to become separated from their column. When strip maps cannot be made available, march personnel should be provided with a list of places through which they must pass, numbers of highways to be used and detailed directions regarding turns to be made en route.

*Halts: duration and frequency.* During moves of less than 3 hours' duration no halt is necessary except during blackouts or under adverse driving conditions. For small columns where the choice lies with the column commander, a halt of 15 minutes at the end of the first hour should be made. Thereafter, a halt of 10 minutes every 2 hours is advisable. One half hour to 1 hour is usually allowed for mess and refueling halts. During combat both the duration and frequency of halts may have to be reduced to shorten road time and decrease the period of exposure to enemy attack.

*Selection of halting places.* Halting places are generally selected in advance by the reconnaissance party. During active operations, winding roads and wooded stretches make the best halting places, since they prevent a straight line target for air attack and provide good concealment. If the halt is of only brief duration, the column may stop on the shoulder of the road on which it is traveling. Otherwise, vehicles should be parked in irregular patterns under cover preferably on the right side of the road. A column should never halt on a traveled lane, on a narrow road, or at any other location where it will interfere with other traffic, if such places can possibly be avoided. It is desirable that halting places provide turn-around facilities so the column may be quickly reversed if necessary. Crossroads, railroad crossings, and similar points are avoided as far as possible, both to prevent interference to cross traffic and to keep the column clear from points likely to attract artillery fire or air bombardment. No part of the column should stop on steep grades or bridges. Comfort of personnel and servicing facilities for vehicles are important considerations in selecting sites for long halts.

*Procedure at halt.* Columns should be halted at points providing adequate sight distance for approaching traffic. In all cases at least 200 yards of clear view must be maintained to the rear of the last vehicle of the column, When the column halts

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so as to force traffic proceeding in the same direction to move on the left of the center line of the roadway, 400 yards clear sight distance should be available throughout the entire length of the parked column. If road conditions prevent these sight distances, steps must be taken to forewarn approaching traffic.

If crossroads, railroad crossings, and similar danger points lie within the halt area of a column, subordinate commanders will require vehicles to stop at least 15 yards from the crossing. When halting on the road, vehicles pull off as far to the right as possible. If shoulders are soft, it may be necessary to keep left wheels on the firmly traveled part of the road. When parked at the side of the road, front wheels of all vehicles are cut toward the center of the road, so as to facilitate a prompt start at the end of the halt; if parked off the road, vehicles should be headed in the direction of probable movement when march is resumed.

It is usually desirable to halt at a specified time, rather than on a hand signal transmitted from the head of the column. Otherwise, the tail of a long column may not receive the order to halt until the head of the column has resumed movement. Halting distances between vehicles depend on the tactical situation and road space available.

*Duties at halts.* Drivers or assistant drivers make the inspection required. Guards, warning flags, caution lights or flares should be posted in front and rear of the column and at any other points where there is a hazard to passing traffic. Troops remain off the road to the right of their assigned vehicles and must keep the traveled portion of the roadway clear at all times. If the column blocks parts of the road at the halt so that it is necessary to operate two-way traffic in a single lane, authorized traffic movements should be alternated by using flags transmitted alternately from one end of the single lane road to the other by the last vehicle of each passing traffic group. Also, pilots can be placed so that traffic can be controlled first in one direction and then in the other. When traffic approaching the halted column (or element thereof) from the rear cannot clear the column prior to the resumption of march, trail officers will require this traffic to remain behind until it is safe for it to pass.

*Messing.* The messing of personnel on a motor march differs little from that of other troops on the march. On one-day trips or shorter moves, the meal en route is usually a cold lunch, although it is preferable to serve a hot meal whenever circumstances permit. If cold lunches are carried, hot or cold drinks will generally be served from thermos jugs or cans. During a night march coffee should be available for distribution at the halt. March menus should provide an ample amount of Vitamin A, since a deficiency of this vitamin may impair driver vision and thus increase the danger of accidents.

*Refueling.* Halts made for other purposes should be used for refueling and replenishing oil whenever possible. It is important that refueling be accomplished before there is any possibility of exhaustion of fuel by any vehicle in the column. If done too early, however, the refueling operation will have to be repeated unnecessarily. Refueling is usually accomplished immediately at the end of a run, but during tactical operations advantage is taken of every opportunity to keep fuel tanks filled. When a limitation of the supply of fuel available requires that vehicles only be partially refueled, close supervision of fuel distribution is necessary to take care of individual differences in fuel requirements of various vehicles.

*Accident.* During active combat, or under other wartime conditions where a traffic accident is a minor consideration, the main part of the march column does not stop to render assistance. If the accident blocks the route, however, the occupants of vehicles in rear must clear the way at once, and then proceed with the march. Necessary steps to care for the injured and salvage vehicles and cargoes are carried out under direction of the trail officer, assisted by medical, maintenance and salvage personnel.

**Protective Measures.** Motor transport is particularly vulnerable to enemy attack locations along the road where congestion is most likely to occur and where traffic density and traffic flow are greatest. Both active and passive defense measures should be utilized at these locations.

*Blackout Restrictions.* Restrictions on use of lights are required to provide secrecy and concealment at night. To prevent light from any source being ob-

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served, there must be no smoking or lighting of matches during marches made under blackout conditions. Flashlights, headlights, and vehicle parts that might reflect light should be covered. Special blackout lighting equipment has been devised to facilitate movement under these conditions, but in close proximity to the enemy, use of any lights whatsoever may be inadvisable.

*Antiaircraft.* Speed of air operations makes it imperative that early information be obtained and timely warning given of approach of enemy air forces. Any plan for the defense of motor transport which does not include a suitable warning service is inadequate. The length of time required for a column to meet an attack varies between wide limits depending on what defense measures are employed. A few seconds warning is sufficient for manning antiaircraft machine guns mounted in trucks. This warning likewise is sufficient for troops riding in trucks with tarpaulin covers removed. However, at least a minute or more will be required to permit motor transport to clear the road and take cover.

Posting of air guards and air guard observers places responsibility for warning on designated individuals whose sole duty is continuous observation. Frequent relief of personnel is essential in order to insure alertness in the performance of this duty. Air guards should be posted to the front and rear of the column and made responsible for observation within a specified sector. If security detachments are used, air guards normally are provided by these detachments. Air guards should be particularly alert to attacks that might come from the direction of the sun. In cloudy weather, attacks are most likely to come from fast, low flying, light bombardment planes. Daylight, air guards should be equipped with dark glasses to permit them to observe for long periods against a bright sky or directly into the sun; night glasses will assist them at night.

Strong defense, preferably by machine guns, should be provided for protection of the head and tail of a column. Other machine guns, automatic rifles, and rifles should be used for protecting interior portions of a column. All weapons should be kept loaded and elevated so as to be ready for immediate use. To facilitate firing at airplane targets, truck covers should be removed from trucks transporting personnel except when the column may expect to be attacked with chemical agents.

*Antimechanized.* Antimechanized weapons should be spread throughout the column with a heavy concentration of weapons in the advance and rear guards. Careful planning will often permit the column commander to select a route limited by natural features to a few avenues of hostile approach. In this event, a high degree of security may be obtained by proper use of barriers and obstacles. Halt locations should be selected so as to make full use of terrain lines or natural features which restrict the operation of mechanized vehicles, and security detachments should habitually be disposed in positions of readiness.

## FOOT MARCHES

The desired objective of training in foot movements is to put troops at the designated place, at the prescribed time and in proper condition to perform any prescribed duty. This may be accomplished by careful preparation, planning, correct dispositions, good march discipline, and observance of the rules of march hygiene. Training marches should be regulated so as to facilitate rapidity of movement, prevent unnecessary fatigue, procure all comfort possible in the situation, and protect troops from hostile aviation. March training should be carefully planned, progressive, and directed toward definite standards of performance.

The best pace and cadence in quick time and double time for a unit must be determined by experiment. The pace and cadence adopted for a unit in both quick and double time will determine the amount of each required to attain the desired over-all rate.

Double timing in formation is difficult. Practice is very necessary to perfect the technique. To minimize fatigue while double timing, troops should keep in step, should lean forward with knees bent, and should place their feet flat on the ground. The jolt from the foot striking the ground should be minimized. The feet should skim the surface of the ground and not be picked up unnecessarily high. This method of double time is a "jog" or "dog-trot." Maximum advantage

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should be taken of all downgrades for double timing. Double timing upgrade, however, will result in an excessive number of stragglers.

**Conditioning.** Conditioning of troops for marching is the responsibility of all commanders and includes physical exercises other than marching. Untrained troops begin training in marching by the execution of short marches, both with and without equipment, and the length and loads are increased as their capacity increases.

The early training of the individual in foot marching should emphasize the fundamentals of march discipline and hygiene.

**March Discipline.** March discipline is that quality acquired through training and experience in marching, which insures adequate march control; care of equipment; obedience to march instructions; proper conduct and performance of duty by individuals; correct formations, distances, and rates of marching, and effective use of cover and concealment.

March control is facilitated by keeping the cadence and the length of step within the capabilities of all individuals making the march. Officers and noncommissioned officers control their units from posts at the rear of their units. From these posts they can observe the progress and conduct of the march, detect and correct errors committed, and examine and make proper disposition of march casualties.

Obedience to march instructions, and proper conduct and performance of duty by individuals are essential to the satisfactory execution of the march. Idle conversation with civilians is avoided; rest periods are utilized fully for resting, treating minor ailments, and adjusting equipment; water and food discipline are maintained.

**Conduct of the March.** *a. Formations.* The formation used in marching should be governed by the tactical situation, the road net and traffic conditions. When permissible, a column of threes on the right side of the road is the most satisfactory. Distances between units should be such that accordion action caused by intra-column interference, is reduced to a minimum.

When vehicles and foot troops are required to use a road simultaneously, the best formation is a file on both sides of the road.

Under combat conditions the unit may be broken down, for security reasons, into a special formation. The column, under such conditions, should be, from front to rear, composed of: (1) the point, 200 yards ahead of, (2) the advance party, which is 400 yards ahead of the support, and reserve, if any of the last two are used in a small unit. The main body is followed by a rear guard when considered necessary. The advance party is sent forward from the support, which in turn sends forward a point, usually the size of a half-squad. Distances between elements of the support vary in accordance with the situation, the terrain, and conditions of visibility. These distances are sufficient to allow each succeeding element to deploy without serious interference from the enemy. However, the distances are not so great as to prevent each succeeding element from supporting the element in front before the latter is destroyed.

Contact between the support and the advance party is maintained by connecting files sent forward by the support.

The advance party is able to patrol to a distance of 200 to 300 yards to each flank of the route of march. The support commander ordinarily marches at the head of the support proper; however, he is free to go wherever his presence is required. Upon encountering the enemy, all units down to the support are committed at once in order to drive off the enemy or envelop his position. It is characterized by rapidity of decision and action.

Flank guards, other than those provided by the advance party, may be employed when the situation warrants it. They consist of very small units that are used as a protection against flank attack by the enemy. These units may move along with the main body, or may leapfrog from one position on commanding terrain to another.

*b. Rate of March.* The assumption must be avoided that the rate of march should always be 2½ miles per hour in daylight and 2 miles per hour at night. The rate of march will depend upon the distance to the march objective, condition of the roads, physical condition of the troops, and the weather. It may vary

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between 2 and 3 miles per hour. The officer at the rear of a marching unit determines by observation whether or not the rate is too fast or too slow and initiates corrective measures to fix the rate in conformity with the capabilities of the troops under existing circumstances.

The optimum cadence for a unit is determined by experiment and, when found, is maintained by a pace-setter who precedes the unit. The pace-setter should be of normal height, have a normal 30 inch pace, and trained to establish the prescribed cadence. He should march far enough ahead of the troops so that he will not be influenced by the men marching behind him.

*c. Halts.* Normally, the first halt is of 15 minutes duration after the first 45 minutes of marching. Thereafter the troops usually march 50 minutes and halt 10 in each hour. Halts should be controlled by command or signal. The speed with which a marching column can disperse and take advantage of available cover and concealment along the route of march will have a direct bearing on the number of casualties which will result from attacks by enemy aircraft. For this reason all troops should be instructed in passive defense measures taken by individuals in case of air attack.

The march outpost is the outpost established habitually by a marching unit making any temporary halt. It is established by advance, flank, and rear guards, and is generally formed by occupying critical terrain features controlling approaches to the resting column, with special attention to the flanks. Its size depends upon the size of the main body, duration of the halt, nearness of the enemy, and nature of the terrain.

**March Hygiene.** *General.* The human body possesses the faculty of adjusting itself to the physical requirements of foot marching. This adjustment, or development of the body, is a gradual process which takes place when regular and progressively increasing demands are made on the muscles. Personal hygiene, as it is related to foot marching, refers to those measures or precautions observed by the individual to preserve his health and physical well-being during marches.

*Preparations.* The following are items that should be individually checked and rechecked by the unit commander the day before a scheduled foot march.

1. See that the canteen is clean and filled with fresh water.
2. See that each man has personal equipment for cleanliness, and for keeping clothing in repair. Should include towel, soap, toothbrush, comb, mirror, needles, thread, pins, and spare buttons.
3. Check adjustment of pack straps and belt.
4. Each man has 2 pair of woolen socks without holes or mends.
5. Shoes must fit comfortably, be in good repair, and be well broken in.
6. Foot inspection.

*On the march.* Conduct on the march with relation to matters of hygiene is the responsibility of all commanders, and all men should be fully indoctrinated with the importance of such matters.

1. *Water Discipline.* Drinking water on the march is largely a matter of habit. Drink plenty before the start of the march. After that drink sparingly. During a rest period after 3 or 4 hours of march take only a few mouthfuls to wash out the mouth. A small pebble or chewing gum carried in the mouth keeps it moist and helps reduce thirst. All water along the route of march is considered contaminated unless declared otherwise by the unit commander or purified by a responsible individual.

2. *Sickness on the March.* Much supposed sickness and weakness is caused by excessive perspiration while marching. This may be greatly alleviated by the use of common table salt or salt tablets to replace the body salts lost through perspiration.

If an individual becomes actually sick, he should fall out only on permission of an officer, and then wait beside the road for aid from the rear of the column.

3. *Care of the Feet.* The most important part of the body to the marching soldier are the feet, and they should be cared for as such. Proper fit of the shoes is of the utmost importance. New shoes should never be worn on the march. They should always be "broken-in" first. Fitting and choice of the socks are also of importance. The best socks are of light weight woolen and to secure maximum comfort should be properly fitted and changed often. On the march a clean pair

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should be exposed to the sun as frequently as possible to destroy any fungi of athlete's foot. Socks with holes should never be worn on the march. The use of well-fitted shoes and socks and proper hygiene of the feet will prevent the formation of blisters.

4. *Clothing and Equipment.* Clothing which is too loose may form folds or wrinkles under other equipment and local irritation will result. Clothing which is too tight will restrict circulation and cause premature fatigue of the part of the body so constricted. For this reason, the wearing of collars, belts, garters and leggings which fit tightly should be avoided. Underclothing should be washed frequent and well dried. Damp garments offer an excellent field for the growth of germs.

When full field equipment is worn, the belt should be well down over the hip bones and below the pit of the abdomen. The top of the haversack should be level with the top of the shoulders, so that the pack suspenders are horizontal from their point of attachment on the haversack. Adjustments are made by altering the length of the pack suspenders and the belt suspenders. The adjustments of this equipment should be checked by company officers prior to the march.

5. *Waste* Disposal. Individuals are expected to relieve themselves during the regularly scheduled breaks at some distance from the main part of the troops. They should be careful to pick a spot that is well hidden so that no other will stumble onto it. A small hole should be dug for the deposit of the feces and covered after use. It is not necessary to especially mark its location. Straddle trenches should be dug at a noon, or other long halt, under the direction of the unit commander.

This covers the general knowledge necessary to a small unit commander or his non-commissioned officers for the conduct of a foot march. The other details, such as a quartering party, sanitation installations, complete security, and others, are covered by a higher echelon of command. However, these too may be practicable for the use of the small unit commander.

## INSPECTIONS

This section cannot attempt to go into the many and varied technical inspections that are necessary, as material of that scope would require an encyclopedia. The emphasis will be placed on company inspections as the greater proportion of officers will be chiefly concerned with these and the remainder will find them helpful in handling larger units.

Army Regulations provide that: "The commanding officer of a company is in general responsible for the administration, instruction, tactical efficiency, and preparedness for war service of his organization". (AR 245-5 par. 2.) The proper fulfillment of this responsibility will require frequent inspections. This is further provided for in the AR's: "Company commanders will hold inspections of the personnel, equipment, and buildings, to include ground contiguous thereto, pertaining to their commands as directed by the commanding officer and at such other times as deemed necessary." (AR 245-5 par. 5a.) The company commander may delegate the actual conduct of any of these inspections to other officers assigned to his command. This entails an understanding on the part of all officers of the purposes and principles of such inspections as are common to all units.

**Purposes of Inspections.** In general, the purpose of any inspection is to ascertain the status of a unit's personnel, buildings, and equipment in relation to some definite standard. However, it is wise to consider some more specific purposes of inspections in order that they may be used more efficiently and to better purpose. For convenience we will divide the discussion into two parts: the first to deal with inspections generally, and the second to deal specifically with tactical and training inspections.

Some of the general purposes of inspections are mentioned below. In particular situations the individual officer may find other purposes, and it is recommended that inspections be made to serve as many purposes as possible in order to make better use of the time spent in them. However, it is wise to remember that "too many irons in the fire will put it out."

(1) To insure uniformity. The inspection itself will not insure uniformity, but the pointing out of errors and the suggestion of proper changes, followed up with other inspections, will accomplish the desired result.

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(2) To ascertain serviceability of clothing and equipment.

(3) To promote efficiency by the correction of mistakes and the replacement or repair of defective equipment. Also to encourage men to improve over their previous standards or to give them information as to how well they measure up to a set standard.

(4) To reveal lack of compliance with regulations. This purpose will probably be accomplished more easily by informal inspections than by formal ones.

(5) To check on conformity with accepted training methods and army policies as set out in directives, circulars, and regulations.

(6) To improve the discipline of the outfit. By careful training through exacting inspections men can be trained to take more and better care of their equipment, to be more diligent in the performance of their duties, to be more meticulous in observance of courtesies, and to obtain a more complete obedience to orders.

(7) To build morale. A neat, clean outfit with its equipment in good shape will tend to have a higher morale than a slovenly, undisciplined unit.

(8) To prepare a unit for outside inspections by giving an opportunity to make certain that the troops understand what is desired. Also to enable deficiencies to be corrected prior to tactical, training, POM, command, and Inspector General's inspections.

The purposes of tactical and training inspections are stated in AR 265-10: "Tactical and training inspections are utilized to produce battle efficiency, to ascertain readiness for field service, and to remove obstacles to training."

The specific purposes of tactical inspections are to promote and ascertain efficiency of training and instruction, battle efficiency of units and their officers, and readiness of a command for active field service.

The specific purposes of training inspections are to observe and examine training with a view to insuring comprehensive, practical, and adequate training programs and school courses. Other purposes are to insure conformity with approved training doctrines, principles, and methods; compliance with approved programs and courses; suitability and effectiveness of instructors; systematic and thorough execution; constructive and timely suggestions which assist in training; and the removal of obstacles to training.

**Principles of Inspections.** The following are a few general principles it is well to keep in mind when making inspections.

*Be thorough.* An inspection that is not thorough fails to accomplish its purpose; it wastes the time of the personnel being inspected and the personnel making the inspection. A lax inspection will promote rather than correct deficiencies in the organization. It will lower morale; the men will feel they are wasting their efforts in preparation and tend to become more lax in the performance of their tasks. The disciplinary value of such an inspection is completely lost. The men will very readily note others getting by and soon copy the laziest rather than the most energetic men in the unit. The high standards of the various officer candidate schools throughout the country are largely maintained through very rigid inspections. It is not advocated that you expect the same accomplishments of the average soldier that is expected of an officer candidate; but to expect or to demand any less of a man at an inspection than he is capable of will reduce the standard of the unit just that much.

*Be punctual.* This applies more particularly to formal inspections than to informal; however, if you are to contact other persons to cooperate with you on the conduct of an informal inspection it applies here also. To fail to conduct the inspection at the scheduled time sets a bad example for the troops, and they will feel that appearance at a set time and place is not so important for them either.

*Be considerate of the men.* Do not, for instance, keep troops standing at attention for long periods of time when it is unnecessary.

*Be fair and impartial.* Have only one standard for any one inspection. The men are very quick to note any favoritism that is shown and will resent it.

*Give careful instructions prior to inspections.* Remember that when an order is not carried out it is frequently the fault of the person giving the order in failing to make clear all the details of the order. You cannot expect to make any check on the thoroughness and precision of a unit in carrying out instructions unless careful explanations are given.

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*Make frequent inspections.* The exact time elapsing between inspections will vary considerably depending on the item being inspected, the conditions under which the unit is operating, the state of training of the unit, the regulations concerning the inspection, and many other factors. For example, shoes must be inspected once each week according to regulations, but a complete and thorough inspection of a supply room once each week would be a waste of time, unless the personnel operating had shown that they needed checking that frequently. The conditions the unit is operating under will affect the frequency of inspections. When in garrison twice weekly may be enough to inspect rifles, but when in the field you may have to increase this to daily inspections in order to insure proper maintenance. However actual operations may prevent this from being done, and you may have to revert to a twice weekly inspection. Rules for the freqency of inspections can only be stated generally as they will vary with each unit. It can be stated that they should be made frequently enough to prevent a lowering of standards and actual loss through neglect. If you find that a thorough inspection of a shop or supply room every two months does not eliminate mistakes and bad practices, make them once a month or ottener until you find that they are being corrected and are in good shape on each succeeding inspection.

*Occasionally conduct a surprise inspection.* There may be a decided difference in the standard for inspections and routine operations. A surprise inspection will reveal this and enable the necessary corrective measures to be taken. It is suggested that as a general rule surprise inspections be the exception rather than the rule and that they be held only by personnel within the unit.

*Stimulate competition.* This is one of the best ways to improve the standards of an inspection. Do not carry this to such a pitch that a spirit of fair play and friendly rivalry is lost. It is very important that fairness and impartiality be carefully observed.

*Set a definite goal or standard for the unit to achieve.* Do not make this completely out of reach, but do not make it too easy to attain. Also increase the standard as a unit improves.

*Vary emphasis.* Do not tend to become the sort of inspecting officer who is satisfied by merely a good haircut or a neat shoeshine. Unless a definite effort is made to change the emphasis from time to time, a good many items will be overlooked.

*Avoid humiliation.* Sound principles of leadership demand that a soldier should never be humiliated except in very unusual circumstances.

*Praise as well as blame.* Often a word of praise will do more to correct deficiencies and raise the standards of a unit than anything else. Do not become known as a type that can never be pleased as the men will have a tendency to give up. If they realize that they are going to be reprimanded regardless of how hard they work, they will soon decide to be censured for little work instead of much work.

*Vary the time and frequency of inspections.* This will tend to improve the average performance of the unit rather than encourage peak performances at inspection time. A unit that is always inspected on Saturday and never observed any other time will tend to be lax during the middle of the week.

*Follow up and recheck.* The simple discovery of faults will not correct them. Pursue them and make certain that they are eliminated. Take all steps that are necessary to prevent their recurrence. Put in necessary work orders and requisitions for missing equipment; see that statement of charges are made out, that repairs are made, and that instructions are issued to clarify any misunderstandings; have a report of survey made, if necessary and see that records are brought up to date, etc.

*Make a schedule of inspections.* A decision to inspect the supply room or check the company records on the next week will often result in such an inspection being held only very infrequently. Set up a schedule of inspecting all phases of the work and hold to it as far as possible. This will usually mean that inspections are made in time to prevent discrepancies from becoming serious.

*Use a checklist.* This is perhaps the most important principle to be observed. There are so many things to check in the average unit that many will be forgotten unless a thorough and complete checklist is used for inspections. As each outfit will have special circumstances and conditions, every checklist will vary in

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some respects. Such lists are usually published by the various Service Commands or Army headquarters, the Inspector General's Office, Division Commanders, etc. Two such lists are (1) Information Circular, IGD, 1943, Military Administration, Ordnance School, Aberdeen Proving Ground, Maryland. ((2) WD, ASF, Pamphlet No. 38-2 Check list for Unit Inspection ASF Units Apr. 9, 1943.

The following paragraphs were excerpted from a manual by Brig. General H. L. Whittaker:

"The subject of inspectors is not to be solved by emotions but by good hard common sense. Don't be dejected by them and fear them. Here is your chance to go to town. He is the disinterested party who can call to the attention of your superior that you are the excellent officer you know yourself to be. Let us assume that the inspector is a perfectly honest, open-minded, conscientious and friendly person who is out to do a job he has been ordered to do. If the inspector walks into a wall of hostility and antagonism, consciously or unconsciously he is going to believe you are concealing something and that there is something very wrong with you and your outfit, and he is going to find out what is wrong. As a trained inspector he can and will find irregularities regardless of how good your unit may be. His annoyed state of mind will magnify these things and his report will reflect this attitude which you and you alone have caused. The least that may happen is that you will be described as 'having an improper attitude toward your responsibilities'. Never forget, in the Army, many senior officers know, or know of, one another. They also talk personalities a great deal, as and when they meet. By this and other unofficial means, a bad reputation gets wide and amazingly thorough advertising.

"Now let us say that you adopt the intelligent reception. The inspector is greeted with a smile and a handshake. You, the commanding officer and not a subordinate, tell him you and your unit are at his disposal. Immediately try to create the feeling of warm, even gracious, official hospitality. Offer him every assistance you can. Give him use of the desk, office, stationery, enlisted men or any other facilities which you might have and which he might use. If your inspector is with you near meal time, invite him to have mess with your unit. You thereby convincingly convey to him that you are proud of your mess and that an important function in your unit is so well conducted that you want him to see it. Experience has proven that the more you offer people the less they will take. Offer to show your inspector everything. The more you offer to show him, either the less he will want to see it or the less time he will spend with you. You are able to point out and stress good points. The inspector becomes more easily convinced that you are efficient and that your organization is doing its job. There are benefits to be derived. You will find the inspector can and will give you some very valuable suggestions and assistance. Secondly, his visit with you will be pleasant and comparatively short. Third and foremost, you will find yourself mentioned favorably in his report. Hidden talents of yours may be brought to the attention of your superiors by this disinterested third party.

"In short use your brains instead of your emotions."

## SAFETY

Safety in an organization is a phase of administrative responsibility that lends itself to the greatest degree of decentralization and yet it is one which must unceasingly receive the impetus and attention of command channels. Just as an organization habitually takes measures to protect itself against annoyances, observation, and surprise attack, it should also religiously insist upon protecting itself against loss of man hours, loss of personnel through occupational accidents, and reduction of efficiency resulting from unsafe practices. One major general of the Ordnance Department has published as required reading to all enlisted personnel of his command this word of caution: "Accidents to military personnel resulting in serious injury or death in many instances have been caused by the carelessness or gross negligence of the individuals involved. The American soldier is far too valuable an asset to his country to be victimized by his own carelessness. Military personnel must be on the alert at all times to protect themselves from needless accidents caused by carelessness." To be sure that carelessness is reduced to an insignificant factor, it is incumbent upon every man to know when and how



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to take precautions to avoid disaster. This requires an educational program of continuing interest and force that can best be maintained by a small group disseminating to a small mass information on the results of a concerted effort to ferret out and correct malpractices and on the initiation of new procedures for new operations. It is the purpose of this article to lay a foundation upon which officers in the field may be able to build sound safety programs suitable to their needs.

To do the right job at the right time is our mission as Ordnance men. Through the medium of the proper administrative agencies who supply us with physically fit and well-trained soldiers and modern tools we can accomplish this. But like the old adage that familiarity breeds contempt, we often witness serious accidents which, upon analysis reveal sheer carelessness or unsafe acts on the part, all to often, of old-timers whom we consider infallible and in whom we have implicit faith. In every 1,000,000 non-fatal injuries, there will be 35,000 resulting in permanent disability. In a 10 million man organization such as our army now approximates, that would be the equivalent of nearly 18 reinforced divisions completely put out of action by carelessness. To state the need for safety is unnecessary, especially when statistics show that 165,000 soldiers, sailors, or marines could have been supplied with the new equipment that could have been produced in the time lost through accidents in 1943.

Our primary interest lies in answering the question, "How can I organize and conduct a safety program which will operate to protect my command and yet will not become a burden in administration?" The answer becomes complex when viewed from the individual missions of approximately 35 different types of Ordnance organizations; so rather than discuss separately those programs best suited for accident prevention in each of these Table-of-Organization units and their combinations, it appears more feasible to limit ourselves to company level and to use a four-platoon company as our basic organization. With a flexible structure we can adjust the safety plan to meet the size and peculiar mission of any field organization insofar as the officers and their responsibilities are concerned.

The company commander should designate each platoon leader as an Assistant Safety Officer and should head this group as the Safety Officer of the company. The functions of this safety section will then be to study the routine and non-routine work program of each platoon and section and to prepare as a result of this study the Standing Operating Procedure (SOP) for conducting not only particularly difficult occupational duties but for conducting even simple jobs such as the mounting of a tire to a rim. For a battalion or similar large organization, the Commanding Officer may be designated as Safety Coordinator, and under his jurisdiction the companies can operate the simple type of organization discussed here. The adherence to the safety program must be made as much a part of each man's daily routine as cleaning his rifle, for in no other way will it function. Rules, regulations, posters, SOP's, layouts will all be for naught if every single man is not indelibly indoctrinated with his personal responsibility to maintain safety.

To do the right job a man must do the job right. And here is where safe practices become as simple and fundamental as the job itself for the right way is the safe way. A good sheet metal man would never dare solder a leaking gas tank without first draining the tank and flushing it with water. A trained and careful machinist knows better than to blow chips from his work, especially if he has had the chips deposited in his eye at some earlier time. The expert small arms mechanic has learned that there is a proper way to assemble the driving spring to a machine gun so that it will not fly out of control and injure his face or chest. These are indeed homely examples of common safe practices where doing the job right entails the observance of simple safety precautions, and yet they prove the number one rule: that safety should be treated positively and that in the formation of good habits we should train ourselves in the "Do's". The "Do not's" will show themselves, be studied, and be incorporated into an SOP.

Following preparation of the SOP, the safety section should teach it to key noncommissioned officers who will then be in a position to conduct job analysis and motion study with their men in order to eliminate further hazards and in many cases to increase efficiency of performance. It is true that in combat section leaders and the key noncommissioned officers have little time to devote

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specifically to safety as such. They are, however, working right beside their mechanics day and night. This presents no burden, but is rather an advantage for here they are close to the greatest density of activity and are thus able to study and to instruct with far greater effect because of the demonstrated need for safe practices. Having been trained properly in the rigorous phases of prescribed mobilization training programs and in special schools, the men now receive a coordinated continued program. They can now measure the value of safe performance; and under patient supervision of the assistant safety officers, the merit of an alert, sensible, and unencumbered safety plan is vividly evident. The responsibility of the assistant safety officer, however, does not cease here, nor have the noncommissioned officer-supervisors yet discharged their full duty. Knowing hazards and finding them has not required special ability. The difficult and seemingly unproductive task is now to instruct, to follow through, and to remain so alert to new requirements that corrective action can be taken before the final penalty of unsafe acts results in personal injury. Failure to accept this responsibility, failure to enforce safe performance is as much a dereliction of duty as to turn one's back in the face of the enemy, and just as profitable on his scoreboard. In 1943 about 700,000 accidental (noncombat) injuries were reported by military organizations and 11,000 men lost their lives in similar accidents.

The Ordnance Department, the Corps of Engineers, and the Quartermaster Corps have commissioned the finest engineers available to design safe equipment and to provide personal safety devices where such are needed. It has been observed that they can build it foolproof but not "damn foolproof;" and to enumerate even the most common acts man has thought up to defeat safety devices would require considerable space. The following list of check points is offered as a basis upon which to make a study for the elemination of those practices which experience has shown must be done away with and which require careful and continuous surveillance:

1. *Physical Fitness*
   Detection of fatigue or mental preoccupation.
   Observation of nervousness or lack of muscular control indicating malassignment. The cause of 2 per cent of accidents.
   Treatment of minor first aid cases.
   Conscientious treatment of cases requiring medical care or restricted types of duty.
   Conscientious first-aid and hygiene training of the safety section and key noncommissioned officers.
   Use of salt tablets, atabrine, and other preventive medicines prescribed for good health.
   Attention to personal sanitation and care of clothing.
2. *Personal Protection*
   Proper training. The lack of it is the cause of 30 per cent of accidents.
   Use of safety goggles and masks.
   Handling acids and rough materials with gloves and hand leathers.
   Cleaning and sterilization of goggles and masks.
   Cleanliness, fit, and protection of eyeglasses.
   Correct methods of wearing all safety devices. 9 per cent of accidents are due to improper use of safety devices.
   Proper wearing of neckties, identification tags, sleeves, trouser cuffs, and proper lacing of shoes, 6 per cent of accidents result from failure to observe these simple precautions.
   First-aid equipment properly located and well-maintained.
   Prohibition of horseplay especially with sharp tools, air hoses, hot irons.
3. *Care of Equipment*
   Continuous inspection of hand tools and education in their use, repair, and maintenance.
   Frequent technical inspection of machine tools and their use. The lack of inspection results in 15 per cent of accidents.
   Protection of goggles and masks from breakage. Inspect frames, lenses, connections, side shields.

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Dressing of grinding wheels and adjusting rests to ⅛ of an inch from the wheel.
Inspection to prevent overloading lathe, cutting tools, winches, grinding wheels, drills, jacks, *A* frames, gin poles. Train operators in their rated capacities.
Degreasing, cleaning, and proper lubrication.
Inspection of fire fighting equipment.
Use and maintenance of guards, safety switches, cords, flexible shafts, and the lubrication of portable hand tools.
Avoiding use of loose hammer heads, split handles, mushroomed chisel heads, dull drills, bent screwdrivers.
Protection of pressure regulating devices.
Maintenance of cables, chains, and ropes.

4. *Layout of Facilities*

Elimination of glare and improper reflection of light.
Avoidance of working in shadows.
Fireproofing where possible and using non-inflammable curtains and other similar cloth screens near flame or sparks.
Use of bulletin boards for education.
Selection of level sites for bench and truck work and for storage layouts.
Maintenance of sufficient operating clearance between stacks, piles, and units, and making close observation of quantity-distance for ammunition storage.
Use of frequent 'clean-ups' and providing sufficient trash containers to avoid tripping and falling.
Maintenance of holders for air hose and strict discipline in their use.
Use of grinders erected at optimum operating height.
Piling of stacks low enough to avoid shadows, high silhouette, and toppling.
Isolation of dangerous operations such as welding, brazing, lead burning.
Keeping of crews to minimum number consistent with safety hazards involved.
Maintenance of warning signs at places of unusual danger, as gas dumps and ammunition storage areas.
Proper and sufficient illumination. Bad light produces 1 per cent of accidents.
Ventilation of battery rooms.

5. *Materials Handling*

Insistance upon secure fastening and stable piling of truck loads.
Guard against exceeding prescribed load limits except in authorized emergencies.
7 per cent of accidents result from overloading.

Avoid boarding or leaving moving vehicles.
Teaching the use of legs for manual handling of heavy loads.
Constant inspection of truck tires and springs.
Proper choice as to size of cables, chains, sheaves, and slings.
Constant study to eliminate manual handling. Use lift trucks, pallets, slings, wherever possible.
Correct use of guy ropes for crane handling of heavy and bulky material.

In the list of official War Department publications there are many excellent guides to provide exact procedures and to stimulate thought along proper safety lines. Among those of interest to Ordnancemen are the following Technical Manuals: 1-420, 421, 422, 423, 430; 3-250; 5-225, 5-295; 8-220; 9-1799, 1900, 2210, 2852, 2900; 10-227, 545, 590; 21-300; and the following Field Manuals: 5-25; 8-40, 50, all 9- series; 21-10, 11: See also War Department Pamphlet 38-2, Ordnance Safety Manual, and Army Regulations 750-10 and 850-15. Occasionally Training Circulars are issued describing new or revised procedures, but since these are subject to change they cannot be listed here. There is no official restriction upon making use of material or ideas gleaned from commercial sources such as the National Safety Council, its magazine, "National Safety News," and its numerous safe practices and health practices pamphlets. It is also most profitable

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to search existing and new publications not necessarily pertinent to Ordnance, as the principles of safety are broad and apply to a host of related activities.

There is located in Chicago as a part of the Office of the Chief of Ordnance, a Safety and Security Branch, through which inquiries regarding any safety program may be forwarded. A staff of highly trained industrial hygienists, explosive experts, machine operation consultants, and storage layout designers are employed to study and advise the entire Ordnance Department. Your problems are welcome and will receive their attention, as they are in constant contact with all types of field and fixed installations through their traveling auditors; and they can usually give you the benefit of the most recent practices developed.

To recapitulate, we have considered in a general way a basis upon which to study and revise existing practices and to make them more efficient. Safe practices and a low accident rate are close friends and depend upon logic and common sense. Preventive maintenance has proved its worth in keeping the Army moving smoothly; and in the final analysis safety and health programs are preventive maintenance for the Army's most valuable asset—manpower.

## GENERAL ARM AND HAND SIGNALS

110. **General.** If a movement is to be executed by a particular subordinate unit or units of a command, a signal designating the unit or units will be given before the signal for the movement.

111. **Forward, To Right (Left); To Rear.** Face and move in the desired direction of march; at the same time extend the hand vertically to the full extent of the arm, palm to the front, and lower the area and hand in the direction of movement until horizontal (fig. 84).

112. **Halt.** Carry the hand to the shoulder, palm to front; then thrust the hand upward vertically to the full extent of the arm and hold it in that position until the signal is understood (fig. 84).

113. **Down, or, Take Cover.** Turn toward the unit or group and raise the hand, palm down, in front of the elbow, forearm horizontal; thrust the hand downward and back to this position (fig. 84).

114. **Double Time; or, Rush.** Carry the hand to the shoulder, fist closed; rapidly thrust the fist upward vertically to the full extent of the arm and back to the shoulder several times (fig. 84). This signal is also used to increase gait or speed.

115. **Quick Time (Walk).** Raise the elbow to a position above and to the right (left) of the shoulder and extend the forearm to the left (right), hand above the head, palm to the front (fig. 84). This signal is also used to decrease gait or speed.

116. **Change Direction.** Carry the hand that is on the side toward the new direction across the body to the opposite shoulder and, with the palm down and the forearm horizontal, swing the forearm in a horizontal plane, extending the arm and hand to point in the new direction (fig. 84).

117. **Enemy in Sight.** Hold the rifle horizontally above the head with the arm or hands extended as if guarding the hand.

118. **Enemy Tanks in Sight.** With the fist strike the rifle or carbine several times between the upper sling swivel and the front sight.

119. **As Skirmishers.** Raise both arms laterally until horizontal, arms and hands extended, palms down (fig. 84). If it is necessary to indicate direction of march, signal FORWARD, moving at the same time in the desired direction.

120. **Assemble.** Raise the hand vertically to the full extent of the arm, fingers extended and joined, and describe large horizontal circles with the arm and hand (fig. 83).

121. **Are You Ready?** Extend the arm toward the leader for whom the signal is intended, hand raised, fingers extended and joined, palm toward the leader (fig. 83).

122. **I Am Ready.** Execute the signal ARE YOU READY (fig. 83).

123. **Commence Firing.** Extend the arm and hand horizontally in front of the body to the full extent, palm of the hand down; move them several times through a wide horizontal arc (fig. 83).

124. **Fire Faster.** Execute rapidly the signal COMMENCE FIRING. For machine guns a change to the next higher rate of fire is required.

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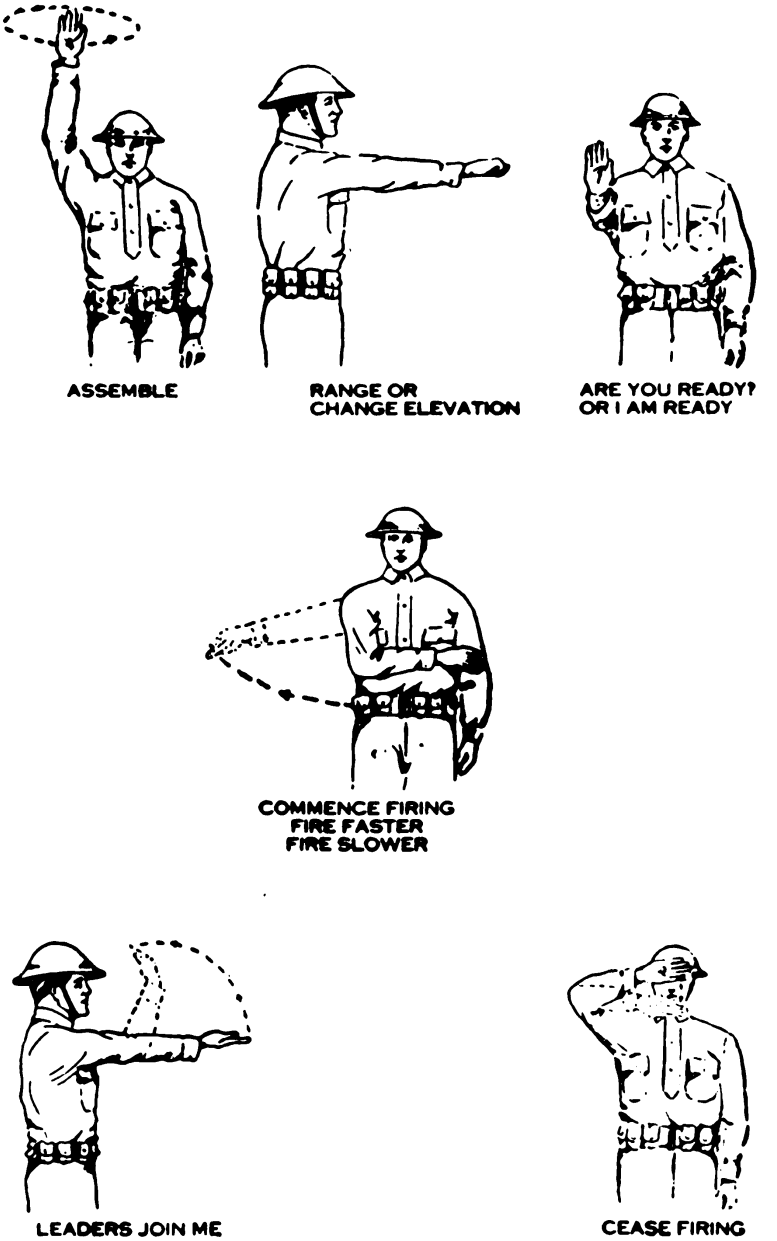



**Figure 83. General Arm and Hand Signals.**

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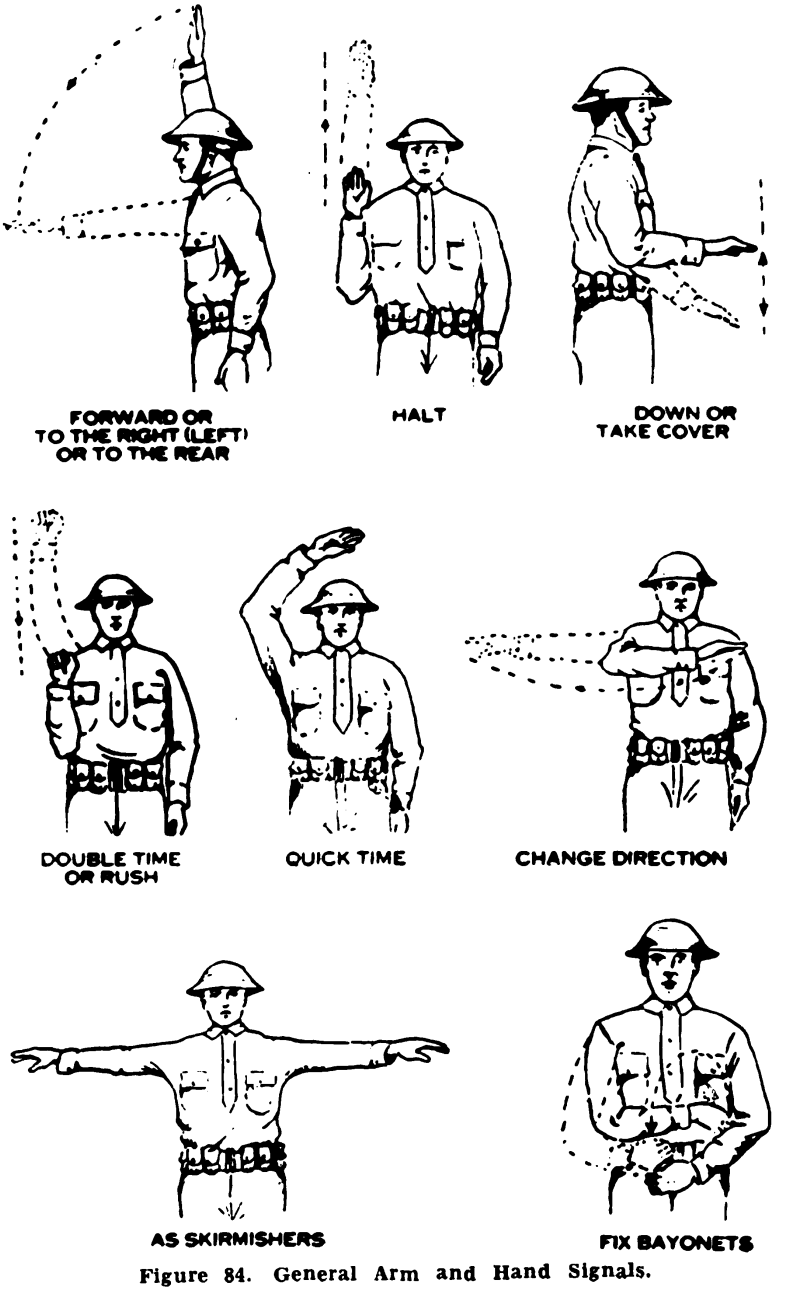



**Figure 84. General Arm and Hand Signals.**

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125. **Fire Slower.** Execute slowly the signal COMMENCE FIRING. For machine guns, a charge to the next lower rate of fire is required.

126. **Cease Firing.** Raise the hand in front of the forehead, palm to the front, and swing it up and down several times in front of the face (fig. 83).

127. **Fix Bayonets.** Simulate the movement of the right hand in fixing a bayonet on rifle (fig. 84).

128. **Leaders Join Me.** Extend one arm toward the leaders and beckon the leaders to you (fig. 83).

129. **Squad.** Extend one arm toward the squad leader, palm of the hand down; distinctly move the hand up and down several times, holding the arm steady (fig. 85).

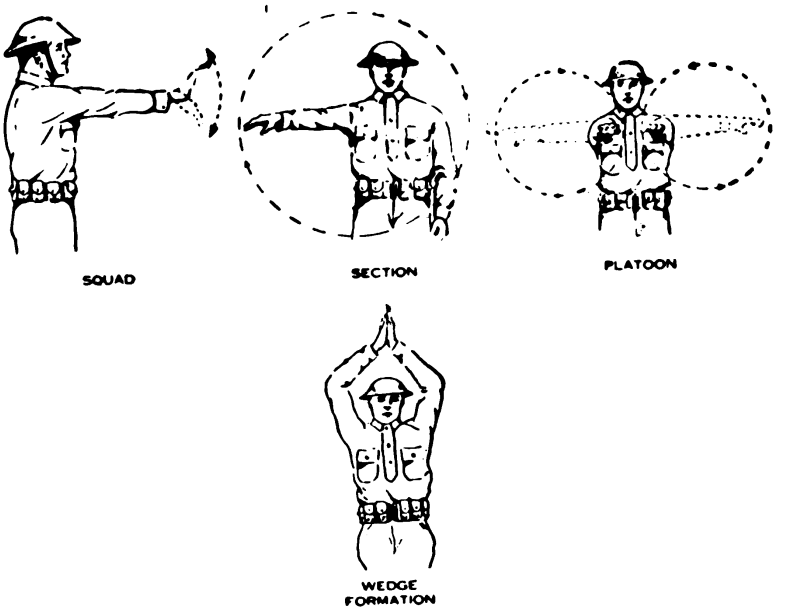



**Figure 85. General Arm and Hand Signals.**

130. **Section.** Extend one arm toward the section leader, palm of the hand down and describe large verticle circles (fig. 85).

131. **Platoon.** Extend both arms toward the platoon leader, palm of the hands down and describe large vertical circles (fig. 85).

132. **Diamond Formation.** Face the unit, place hands behind head, elbows extended beyond shoulders.

133. **Squad or Section Column.** Face the unit, raise the right arm to the front, until horizontal, palm of hand down; first give the signal for squad or section (fig. 85), then smartly lower and raise the right arm to the side of the leg several times.

134. **Platoon Column.** Face the unit, raise both arms to the front, until horizontal, palm of hands down; first five the signal for platoon (fig. 85), then smartly lower and raise both arms to the sides of the legs several times.

## INTERIOR GUARD DUTY

The majority of us have come from civilian life and there we have been familiar for a long time with the policeman and his beat. We know why he is posted—to protect the life of every resident of the town, to provide security for that resident's property, and to maintain order or to prevent disorder. The 'Cop' walks his beat in either a fixed or irregular route, all the while watching for signs of a suspicious nature; he reports periodically to the station house; and he is inspected occasionally by the police lieutenant.

Guard duty in the Army is no different from police duty in civilian life, with the exception that much more is at stake. In time of war the very existence of the Nation may depend on the alertness and response of one lone sentry; consequently, the rules of duty are much more strict. Yet the comparison remains:

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| | |
|---|---|
| Policeman | Sentinel |
| Beat | Post |
| Desk Sergeant | Sergeant of the Guard |
| Station House | Guard House |
| Police Lieutenant | Officer of the Guard |
| Chief of Police | Field Officer of the Day |

An interior guard is composed of a certain number of enlisted men (sentinels), a few noncommissioned officers (corporals and sergeant of the guard), and one or more officers (officers of the day and officers of the guard). The area guarded is split into smaller sections called posts, somewhat as a city is divided into blocks.

Sentinels are given one post to guard; as a rule one sentinel on a post provides sufficient protection, but two or more may be detailed on the same one, depending on its importance. If an emergency arises certain ones will be strengthened with more sentinels. Corporals of the guard have charge of a given number of sentinels and advise them and instruct them in their duties. The sergeant of the guard is always the enlisted man with the most experience in guard duty and acts as chief advisor and instructor over the corporals of the guard. He is over all other noncommissioned officers of the guard no matter what his rank may be. The officer of the day and the officer of the guard supervise, inspect, and issue orders to the guard.

The purpose of an interior guard is to protect the lives of individuals, to guard buildings and other property against fire and theft, and to prevent their damage and destruction by saboteurs and fifth-columnists. In carrying out these objectives the guard will have to stop all unauthorized persons from entering forbidden buildings and areas, to investigate and question all persons whose actions are suspicious, and arrest all those who cannot properly identify themselves or explain their activities.

A member of the guard has all the authority needed to carry out explicitly the orders given him. A sentinel on post plays a vital part for the following reason:

Army Regulations make the commanding officer of any post, camp or station responsible for the safety and security of everything and everybody within his area of command; and they give him the power to take any action he considers necessary to enforce safety measures. Naturally, it is impossible for him to guard the area personally, and hence he gives his authority, that same power to every member of the guard who is assisting him. The sentinel is his representative and as such takes orders only from the commanding officer or field officer of the day, officer of the guard, sergeant of the guard and the corporals of the guard.

Every member of the guard has specific duties which he must perform. The following is a list of duties; they may vary at the discretion of the commanding officer.

**Commanding Officer:**

1. Details the size of the guard;
2. Prescribes rules and regulations for the guard;
3. Receives report of the officer of the day and examines the guard report;
4. Relieves the old officer of the day and posts the new officer of the day;
5. Prescribes regulations for the control of prisoners.

**Officer of the Day:**

1. Direct representative of the commanding officer;
2. Responsible for performance of the entire guard;
3. Inspects guard at any time he sees fit and must make at least one inspection between midnight and morning;
4. In case of any alarm takes the necessary steps to protect life and public property, using the guard for this purpose. The senior line officer may take over in extreme emergencies;
5. Verifies count of prisoners; inspects guardhouse area anytime he deems necessary;
6. Releases garrison prisoners on expiration of sentence;
7. Releases general prisoners only on written authority of commanding officer;

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8. Signs guard report of the commander of the guard and enters his own remarks or comments. Submits his daily report to the commanding officer;
9. Keeps guard informed as to his whereabouts at all times.

**Officer of the Guard:**

1. Responsible for discipline, instruction, inspection, and performance of guard duty;
2. Receives and obeys orders of the commanding officer and officer of the day;
3. Sees that the guard detail is correct and knows its orders;
4. Inspects each relief at least once and as often thereafter as directed by the officer of the day;
5. Inspects prisoners, cells, irons, and shackles at least once daily;
6. If leaving the guard house informs the next in command of his destination and probable time of return; he may divide his time with next in command;
7. Insures that calls and details are on time;
8. Details the guard for raising and lowering the flag; checks the flag for serviceability;
9. Sees that reliefs are relieved and posted on time;
10. Detains all suspicious persons and notifies commanding officer;
11. Responsible for the security of prisoners; searches new prisoners; change reliefs; directs corporal to check prisoners; Sees that sentences are strictly executed; notifies the officer of the day of prisoners whosen sentences expire that day and notifies the officer of the day when no charges have been received on a new prisoner;
12. Prepares guard report and submits it to the officer of the day daily.

**Sergeant of the Guard:**

1. Senior noncommissioned officer of the guard, not necessarily a sergeant;
2. Is commander of the guard when no officer of the guard is detailed;
3. Has general supervision of all junior members of the guard; must be familiar with all their orders;
4. Responsible for the property under charge of the guard; lists articles taken by members of the guard;
5. Prepares duplicate list of noncommissioned officers, buglers, and privates, showing reliefs, posts, and duties; one copy goes to commander of the guard, the other he keeps;
6. Sees that reliefs are turned out on time, that the corporals know their orders and are effiecient in the discharge of their duties;
7. Makes inspections of the guardhouse and sees that the corporals of the guard also make them;
8. Delegates duties to next senior noncommissioned officer during any temporary absence;
9. Takes place of the corporal of relief if corporal is called away or appoints another noncommissioned officer to do so;
10. Responsible for the police of guardhouse and surrounding area;
11. Goes to adjutant's office for the guard report as directed by the commanding officer;
12. Reports to officer of the guard or officer of the day any unusual occurrences and notifies him of all arrests made by the guard;
13. Keeps keys to guardroom and cells in his possession when in guardhouse;
14. Has direct charge of all prisoners except when under charge of a sentry and is responsible for their security;
15. Counts utensils given the prisoners and sees that they are returned; sees that unauthorized articles are not conveyed to prisoners;
16. Forms the guard whenever a formation is necessary.

**Corporals of the Guard:**

1. Receives orders from the commanding officer, officer of the day, commander of the guard, and noncommissioned officers senior to himself;
2. Assigns members of his relief to their respective posts (Assignment can be changed only by the commander of the guard or higher authority);

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3. Makes duplicate list of the members of his relief including himself, keeps one and gives one copy to sergeant of guard;
4. Instructs relief as to their orders and duties; makes sure they know their general and special orders; must know the special orders of every sentry on his relief;
5. Reports to commander of guard any violation of regulations or unusual occurrence reported to him by a sentinel;
6. When his relief is on duty or on the alert posts himself near the door of guardhouse; he is armed; notifies sergeant of the guard if necessary to leave;
7. When called by a sentinel, he goes to him at once;
8. When the guard is called out, he will fall out his relief promptly; he will bunk in the vicinity of his relief;
9. He will awake the corporal of the next relief in time to verify prisoners, and wake, form, and post the new relief;
10. When out inspecting his relief during challenging hours, he will challenge all persons and advance them to the nearest sentinel;
11. He will examine all persons detained by a sentinel, and if there is any doubt as to the authority for their presence, will take them to the commander of the guard;
12. He will arrest all suspicious persons, those disturbing the peace, and persons caught in the act of committing a crime.

**Bugler of the Guard:**

1. There will be as many as the commanding officer may direct;
2. They will remain in the guardhouse unless otherwise directed by the commanding officer;
3. They will sound calls as directed by the commanding officer and see that all calls are on time;

**Privates of the Guard:**

1. He is the sentinel that walks the post, predetermined in a fixed post system.
2. He is assigned to a relief by the commander of the guard and to his post by the corporal of his relief; post No. 1 is usually at the guardhouse.
3. He is subject at all times to the eleven general orders. See Figures 122-132.

## INSPECTION OF THE GUARD

**Relative Positions of Officer of the Day—Officer of the Guard During Inspection**

The officer of the day then directs, 'Prepare for Inspection.' The officer of the guard faces about and commands: 1. OPEN RANKS, 2. MARCH. He then proceeds to the right flank of the guard, verifies the alignment, and commands: 1. READY, 2. FRONT. He then commands: PREPARE FOR INSPECTION, and takes his post three paces in front of the right guide. The officer of the day then approaches the officer of the guard who salutes and says, 'Sir, the guard is formed for inspection.' The officer of the day then inspects the guard and selects the necessary orderlies and color sentinels. Any men who do not present a creditable appearance are caused to fall out, returned to quarters, and replaced. When the inspection is completed the officer of the day resumes his position, the officer of the guard assuming his position three paces in front of the right guide. The officer of the guard then closes ranks and takes his post six paces in front of the guard. The officer of the day then directs the officer of the guard to march the guard to the guardhouse. The officer of the guard salutes the officer of the day, about faces, gives the guard right face, right shoulder arms, and marches the guard off.

## INFORMAL GENERAL MOUNT

When a noncommissioned officer commands the guard, the officer of the day gives the commands for opening and closing ranks and verifies the alignment.

Informal guard mount is held on the parade ground of the organization from which the guard is detailed, or, if the guard is detailed from more than one organization, at such place as the commanding officer may direct.

The sergeant of the guard forms the guard with the noncommissioned officers centered on the officer of the day and in a fourth rank behind the reliefs. He

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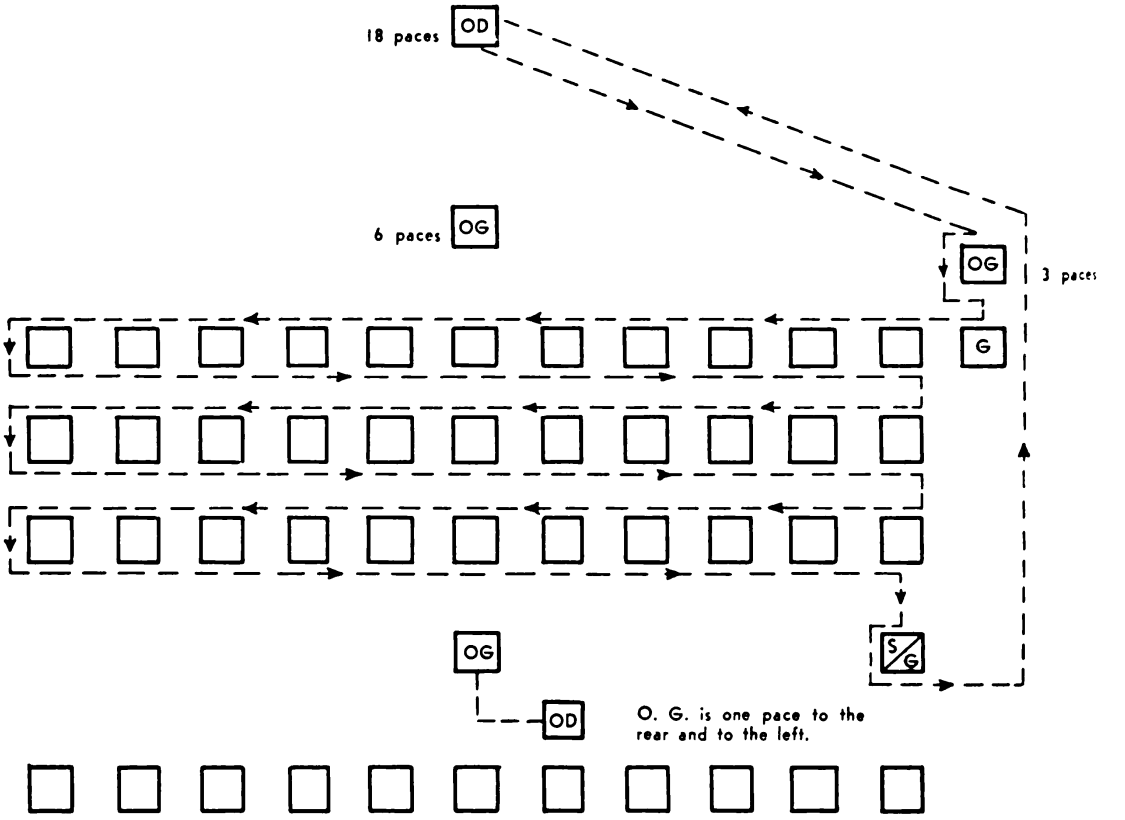



**Figure 86. Inspection of the Guard.**

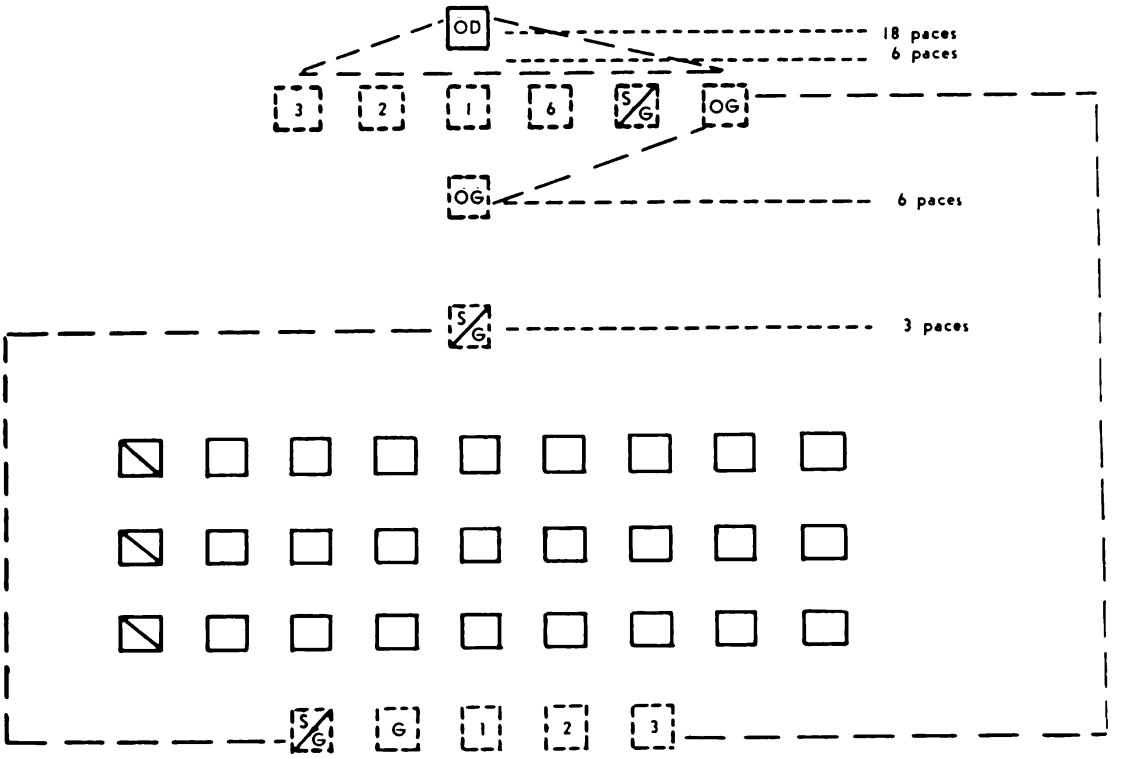



**Figure 87. Informal Guard Mount.**

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then does an about face, salutes the officer of the guard, and says, 'Sir, the guard is correct.' The officer of the guard then commands the sergeant to take his place in ranks, and waits until he takes his place in the rear rank next to the guide. Then the officer of the guard does an about face, and reports to the officer of the day, 'Sir, the guard is correct.'

The officer of the day (18 paces in front of the guard) commands: 1. OFFICER AND NONCOMMISSIONED OFFICERS, 2. FRONT AND CENTER, 3. MARCH. At the command 'Front and Center' the noncommissioned officers do a right face, and come to right shoulder arms. At the command 'March' they move forward. Then at the commands of the sergeant, they execute two column left movements and halt six paces in front of and centered upon the officer of the day, and face to the right. The officer of the guard moves up on line with and to the right of the sergeant. The officer of the day then moves directly to a position in front of the officer of the Guard, etc., and assigns the officer and noncommissioned officers to their respective posts; the officer of the day then returns to his normal post. The officer of the day commands: 1. OFFICER AND NONCOMMISSIONED OFFICERS, 2. POST, 3. MARCH. At the command POSTS they execute an about face. At the command MARCH, they move by the most direct route to their assigned posts. The sergeant takes his post immediately behind the file of corporals.

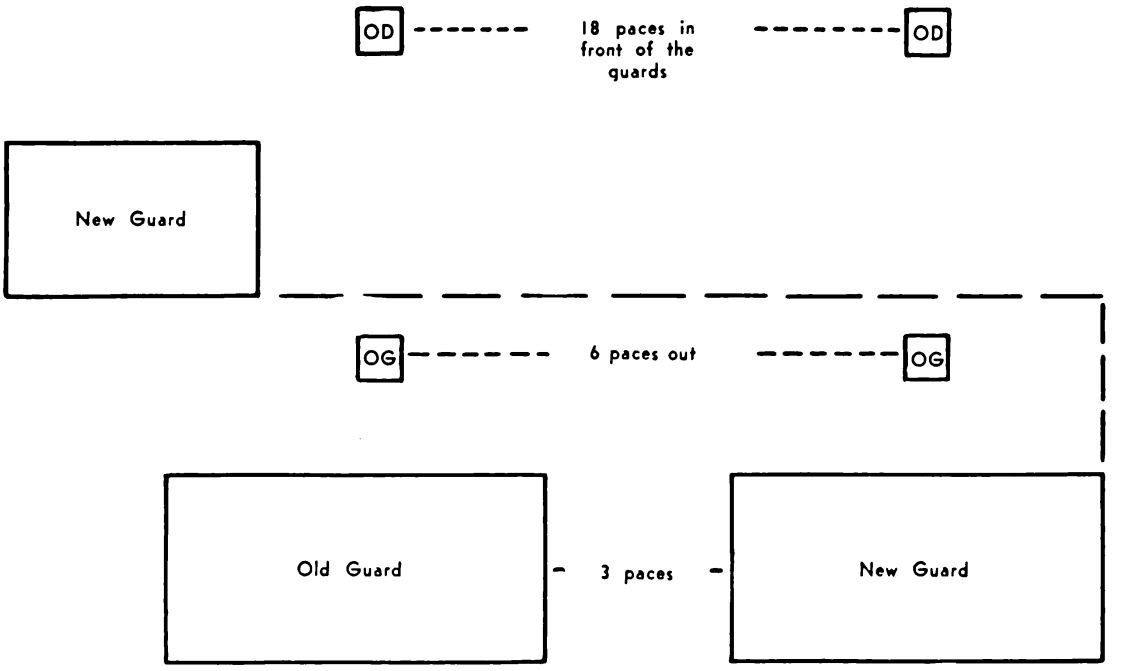



**Figure 88. Relieving the Old Guard.**

As the new guard approaches the guardhouse, the old guard is formed. When the right guide of the new guard arrives opposite the old guard's left flank, the commander of the new guard commands: 1. EYES RIGHT, and the commander of the old guard commands: 1. PRESENT, 2. ARMS. Commanders of both guards exchange salutes. The new guard marches in quick time past the front of the old guard. As soon as the new guard clears the front of the old guard, the commands: 1. READY, 2. FRONT, to the new guard) and 1. ORDER, 2, ARMS, (to the old guard) are given. The commander of the new guard then gives: 1. BY THE RIGHT FLANK, 2. MARCH, and halts his guard on line with the old guard. He then commands: 1. ORDER, 2. ARMS; 1. ABOUT, 2. FACE, and then dresses his guard three paces from and on the old guard by command: 1. DRESS LEFT, 2. DRESS. He verifies alignment from the right flank of his guard and, after giving ready front, takes his post six paces out in front of his guard.

The commander of each guard then executes an about face and commands: 1. PRESENT, 2. ARMS, and resumes his front; they salute each other, about face and give: 1. ORDER, 2. ARMS. They about face and do nothing. Next they about

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face and give: 1. PRESENT, 2. ARMS, about face, and each guard is presented by its commander to its officer of the day. They then about face and give: 1. ORDER, 2. ARMS, about face, and at this time the officers of the day exchange salutes.

If there are prisoners, it is at this moment that the new officer of the day verifies their count and moves them over to his guard. The officers of the day then turn the guards over to the commanders of the guard.

The commander of the new guard assigns the men to their respective reliefs and places them under charge of the proper noncommissioned officer.

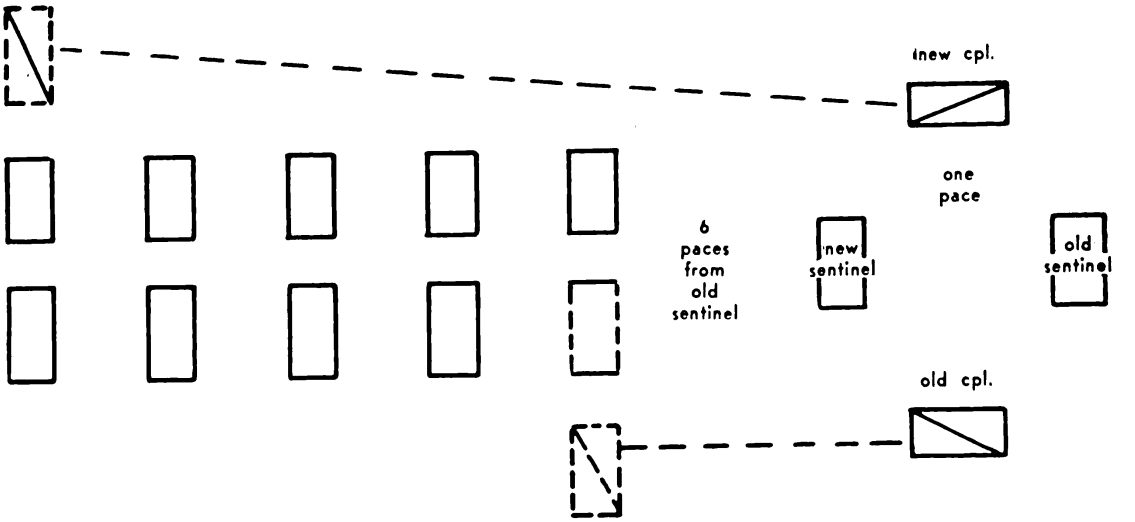



**Figure 89. Forming a Relief.**

The corporal takes post two paces in front of the center and commands: 1. FIRST (OR OTHER) RELIEF, 2. FALL IN (unless the relief is already in ranks, as is the first relief after guard mounting). The relief falls in in double ranks, odd numbers in order from right to left in the rear rank, even numbers in the front rank. The corporal then commands: CALL OFF. The men call off the numbers of their posts in order. The corporal then commands: 1. INSPECTION, 2. ARMS; 1. ORDER. 2. ARMS. He faces about, salutes and reports to the commander of the guard, 'Sir, the relief is present,' or 'Sir, Pvt. John Doe is absent.' The commander of the guard may make a hasty inspection of the relief by walking around it. He then commands: POST YOUR RELIEF. The corporal salutes and commands: 1. RIGHT, 2. FACE; and 1. FORWARD, 2. MARCH. The corporal marches on the left of the rear file where he can observe the march and also look to the front.

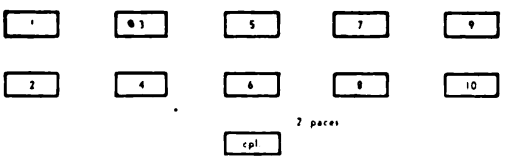



**Figure 90. Posting a Relief.**

The relief proceeds through the cordon of posted sentinels in numerical order. When it arrives at 30 paces from a sentinel, he halts and faces the relief remaining at right shoulder arms. When the relief is at 6 paces from the sentinel, the new corporal commands: 1. RELIEF, 2. HALT, and adds number —— (the number of the post). The new sentinel, who is always in front, comes to right shoulder arms, advances along the post, and halts one pace from the end facing the old sentinel. Both sentinels then execute port arms. The new corporal places himself opposite the interval between the sentinels facing them on the right of the old sentinel and remaining at right shoulder arms. The old sentinel transmits his special orders to the new sentinel under the old corporal's supervision. The new corporal then gives the command: POSTS. Both sentinels come come to right shoulder arms, face

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toward the new corporal, and step back so that the relief can pass in front of them. The new corporal commands: 1. FORWARD, 2. MARCH. The relief resumes the march, the old sentinel taking his place in the proper rank in the rear, and the corporals taking their places as the relief passes. When the last sentinel has been posted, the corporal of the old guard takes command of his relief, the two corporals changing places. The old relief is formed on the left of the old guard and reported to the commander. If the guard has been marched off, the corporal marches his men to their quarters and reports there to the noncommissioned officer in charge of quarters.

If a relief of the old guard is walking post, the first relief of the new guard is immediately formed and relieves the old relief. The two guards stand at ease or rest while these changes are made. The commander of the old guard transmits to the commander of the new guard all his orders, instructions and information concerning the guard and its duties. The commander of the new guard then takes charge of the guardhouse. If the third relief of the old guard is on post, the first and second reliefs may be dismissed. In such case the third relief when coming off post is inspected by the commander of the new guard, placed in charge of the senior noncommissioned officer, and returned to barracks. If the two reliefs are held, the third will form three paces from the left flank of the old guard and be inspected by the commander of the old guard.

## PROCEDURE FOR CHALLENGING

**Procedure for Challenging.** During challenging hours if a sentinel sees anyone on or near his post, he will advance rapidly to within 30 paces of the person and will sharply call, 'Halt! Who is there?' The sentinel may continue his advance while challenging if he so wishes. The sentinel chooses the spot most advantageous to himself; he may then order the person challenged to dismount if in a vehicle, face the light if visibility is poor, or advance toward him for recognition. The sentinel must satisfy himself beyond any reasonable doubt that the person challenged has authority to pass; if doubt exists, the sentinel will call the corporal of the guard. The commanding officer may at his own discretion limit challenging to suspicious looking persons.

A single person approaching a post will advance after he is challenged at the command, 'Advance and be recognized,' or, in the case of the officer of the day, for example, 'Advance, officer of the day, and be recognized.'

If a group is challenged the procedure remains the same except that the sentinel after halting it will say, 'Advance one and be recognized.' If he is satisfied that the challenged person is authorized to pass and if the person challenged will vouch for the remainder of the group, the sentinel will pass the rest of the group.

If the sentinel is simultaneously approached from different directions, he will halt both parties and proceed to advance them one at a time, the senior in rank advancing first.

If the sentinel is in conversation with one person and others approach, he will halt the others. If they are senior to the one to whom he is speaking, he will immediately advance the senior of the approaching group; if no one in the approaching group is senior to the one with whom he is speaking, he will keep the approaching person at a halt until the senior leaves.

The following order of rank governs a sentinel in advancing persons approaching his post: commanding officer, officer of the day, officer of the guard, other officers, patrol, relief, noncommissioned officers of the guard by rank, and friends.

In answer to a sentinel's challenge no replies intended to confuse him will be given. Under certain circumstances, however, the person challenged may answer with such words as 'friend' if he does not wish to disclose his rank or duty.

**Special Guards.** Special guards are detailed when it is uneconomical or impractical to guard an area by sentinels from the main or post guard. They are governed by the rules and principles as set forth by the commanding officer. Special guards may be used as body guards or color guards or for protection of trains, animals, trucks, forage, boats, docks, stables, supplies, public property, and payrolls. Other guards that are used for similar details may also be classified as special guards.

**Outposts.** Outposts should be located around the perimeter of the bivouac area at distances ranging from 200 to 500 yards from the area. They should be placed

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1. **TO TAKE** charge of his post and all Government property in view.

**Figure 91. General Order Number 1.**




2. **TO WALK** my post in a military manner keeping always on the alert and observing everything that takes place within sight or hearing.

**Figure 92. General Order Number 2.**




3 **TO REPORT** all violations of orders I am instructed to enforce.

**Figure 93. General Order Number 3.**




4. **TO REPEAT** all calls from posts more distant from the guardhouse than my own.

**Figure 94. General Order Number 4.**




5. **TO QUIT** my post only when properly relieved.

**Figure 95. General Order Number 5.**




6. **TO RECEIVE,** obey and pass on to the sentinel who relieves me all orders, from the commanding officer, officer of the day, and officers and noncommissioned officers of the guard only.

**Figure 96. General Order Number 6.**

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7. **TO TALK** to no one except in the line of duty.

**Figure 97. General Order Number 7.**



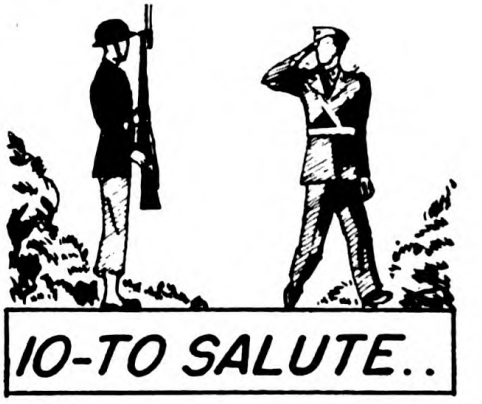

8. **TO GIVE** the alarm in case of fire or disorder.

**Figure 98. General Order Number 8.**




9. **TO CALL** the corporal of the guard in any case not covered by instructions.

**Figure 99. General Order Number 9.**




10. **TO SALUTE** all officers and all colors and standards not cased.

**Figure 100. General Order Number 10.**




11. **TO BE** especially watchful at night and, during the time for challenging, to challenge all persons on or near my post, and to allow no one to pass without proper authority.

**Figure 101. General Order Number 11.**

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at points covering the road networks, entrances and exits to the area, and natural avenues of approach. Trip wires, with alarm devices attached, may be used to advantage across strategical sections between the outposts. Each outpost should be occupied by at least two men and, where possible, these men should be relieved at frequent intervals. At night it may be desirable to increase the strength and number of the outposts. The primary duty of the outposts will be to warn the unit of the approach of enemy forces and, if necessary, to fight a delaying action pending reinforcements in the event of enemy attack. The outposts should be armed with automatic weapons and linked by a visiting patrol of two or more men.

For additional information on the tactical use of outpost guards, refer to the section entitled *Security in Bivouac.*

## EQUIPMENT, CLOTHING, AND TENTS

**General.** This section pertains to the care and cleaning of equipment and clothing, the marking of equipment and clothing, the display of equipment for formal inspection, tent pitching, and latrine screen pitching. It is the individual's responsibility to see that the equipment and clothing issued to him is maintained in serviceable condition, and that the proper finishes of metal, leather, and painted articles are protected or renewed.

**Care and Cleaning of Equipment and Clothing.** *Leather.* Mild soap and warm water are the best agents for cleaning leather. Dirt and mud will be removed from boots and shoes by brushing or by scraping with a dull instrument. Drying by direct exposure to sun, fire, or strong heat is injurious to the leather and is prohibited. After cleaning, apply saddle soap or neatsfoot oil to preserve the leather. Dubbin is particularly suited since it waterproofs as well as preserves the leather.

*Web equipment.* Wash with mild soap and warm water. Dry thoroughly in a place away from the sun.

*Clothing.* The uniform will be kept clean and neat and in good repair. Clothing, especially shoes and socks, will be altered or exchanged if necessary. Brass will be cleaned with a polishing cloth, soap and water, and shined with a soft rag.

*Mess gear.* Wash with soap and hot water. A few pebbles inside the canteen will assist in cleaning.

*Gas Mask.* The gas mask must be kept clean and adjusted to fit the head at all times. After wearing, wipe the mask dry thoroughly. At least once a week, examine th emask for damage, put it on and test it, then wash it with soap and water and dry is carefully.

*Rifle and Carbine.* Clean metal parts with lubricating oil. Clean bore with rifle bore cleaner or GI soap and hot water. After firing the weapon will be cleaned thoroughly on the three days following the day of firing. Treat stock with linseed oil. Treat leather sling with neatsfoot oil. For field stripping refer to Chapter on Small Arms in Vol. II.

**Marking of Clothing and Equipment.** *General.* The marking of clothing and equipment as prescribed in AR 850-5 is shown in figure 102.

**Display of Equipment.** *Formal inspection.* a. When shelter tents are not pitched and relative position of basic articles of equipment is as indicated in figure 103.

Special items of equipment not shown in figure 103 are added to the display without disturbing the relative positions of basic articles.

When shelter tents are pitched, the blanket remains in the position shown for shelter half and blanket in figure 103. The rear edge of the blanket is on line with the front edge (entrance) edge of the shelter tent.

**Tent Pitching.** *Shelter Tent.* Except for inspections and under similar conditions, alinements and intervals of the tents will be subordinated to the employment of the available ground for the concealment and comfort of the troops.

*To Form for Shelter Tents.* For instruction and for inspections, the platoons or sections are formed for pitching tents as prescribed below. (1) The platoon being in line the commands are: FORM FOR SHELTER TENTS TO THE LEFT (RIGHT), MARCH; DRESS RIGHT (LEFT), DRESS; READY, FRONT, COUNT OFF. (2) At the command FORM FOR SHELTER TENTS TO THE LEFT (RIGHT), the second in command moves to a position on the right of the guide who is on the right of the right man of the front rank. The messenger takes position on the left of the left man of the rear

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rank. (3) At the command MARCH, all squads except the front squad face to the left in marching and step off. Squad leaders by giving the appropriate commands, BY THE RIGHT (LEFT) FLANK, MARCH, and SQUAD HALT, move their squads into line abreast of the squad(s) already on line. (4) At the command DRESS RIGHT (LEFT), DRESS; READY, FRONT; and COUNT OFF, given by the platoon leader the entire rank executes these movements. (5) On direction of the platoon leader, the odd numbers draw their bayonets and thrust them into the ground alongside the outside of the left heel near the instep. The bayonet indicates the position of the front tent pole. Men not equipped with bayonets mark the place with the left heel. Odd and even numbers (Nos. 1 and 2; Nos. 3 and 4; etc.) pitch tents together. (6) To assemble, the platoon is faced to the right and reformed from single file into column of threes (or fours) to the right (left). The platoon sergeant and messenger resume their normal posts.

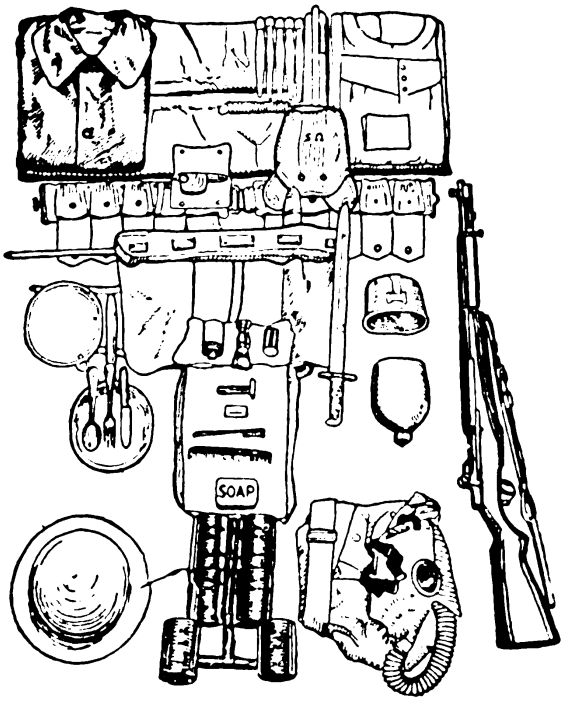
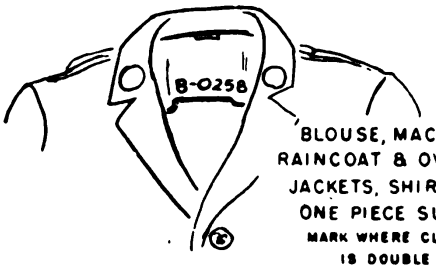



**Figure 103. Display of Equipment.**

*Formal Shelter Tent Pitching.* (1) At the command, PITCH TENTS, each man (if armed with the rifle) steps off obliquely with the right foot a full pace to the right front, lays his rifle on the ground, muzzle to the front, barrel to the left, butt near the toe of his right foot. He then steps back into place. All men then unsling equipment and place their packs on the ground in front of them, haversacks up and to the front, the packs two paces in front of their positions. They then open their packs and remove their shelter halves, poles, and pins. Each odd numbered man, when not armed with a bayonet, places a pin in the ground on the spot which he previously marked with his left heel. The men of each pair spread their shelter halves on the ground which the tent is to occupy, triangle to the rear, buttons to the center, the even numbered man's half on the left. (2) They then button the halves together. The odd numbered man adjusts his pole through the eyelets in the front of the tent and holds the pole upright in position beside the bayonet (or pin). The even numbered man pins down the front corners of the tent in line with the bayonets (or pins). He then drives the front guy pin a rifle length in front of the front pole. If he is not armed with the rifle, he measures this distance with his tent rope by taking the distance from the base of the front tent pole to one of the front tent pins. He places the loop of the guy rope over the front guy pin, runs the other end of the rope through the loops of the shelter halves and ties it, making sure that the pole

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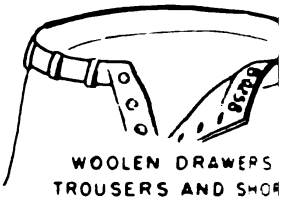
# MARKING OF CLOTH




BLOUSE, MACKINAW, RAINCOAT & OVERCOAT, JACKETS, SHIRTS & ONE PIECE SUITS - MARK WHERE CLOTH IS DOUBLE



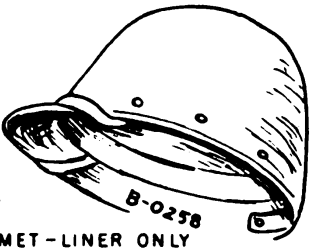

LEGGINGS



WOOLEN DRAWERS TROUSERS AND SHOR (MARK IDENTICALLY)



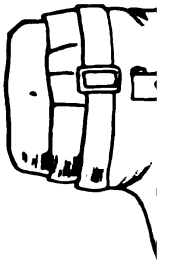

HAT - HERRINGBONE TWILL




HELMET - LINER ONLY



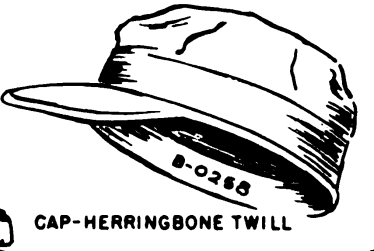

UNDERSHIRT, COTTON & WOOL



GAS MASK



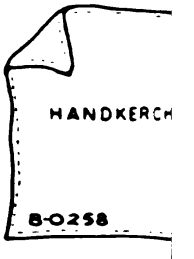

CAP - GARRISON

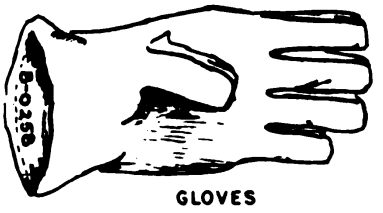



CAP - HERRINGBONE TWILL




SOCKS




GLOVES



BELT, WEB, WAIST

| AUTHORIZED ALLOWANCES | T/E 21 |
|---|---|
| 1 TENT, SHELTER, HALF | 1 |
| 2 PINS, TENT, SHELTER, WOOD | 5 |
| 3 BELT, WEB, WAIST, M-1937 | 1 |
| 4 CAP, GARRISON, COTTON, KHAKI | 1 |
| 5 CAP, GARRISON, OD | 1 |
| 6 HAT, HERRINGBONE TWILL, or CAP, HERRINGBONE TWILL (b) | 1 |
| 7 CAP, WOOL, KNIT, M-1941 | 1 |
| 8 CAP, WINTER (UNTIL EXHAUSTED) (a) | 1 |
| 9 COAT, WOOL, SERGE, OD | 1 |
| 10 INSIGNIA, COLLAR, EM, US | 1 |
| 11 INSIGNIA, COLLAR, EM | 1 |
| 12 COAT, MACKINAW, OD, (c) or OVERCOAT, WOOL, OD, ROLL COLLAR | 1 |
| 13 DRAWERS, COTTON SHORTS, or 2 PR MAY BE DRAWERS, WOOL | 5 |
| 14 GLOVES, WOOL, OD, LEATHER PALM | 1 |
| 15 GLOVES, LEATHER, HEAVY (a) | 1 |
| 16 HANDKERCHIEF, COTTON, WHITE | 4 |
| 17 INSIGNIA, SLEEVE, CHEVRON SERVICE, COTTON | 6 |
| SERVICE, WOOL | 4 |
| 18 HELMET, STEEL, M-1, with LINER, HELMET, and BANDS | 1 |
| 19 JACKET, FIELD, OD | 1 |
| 20 JACKET, HERRINGBONE TWILL (d) | 2 |
| 21 TROUSERS, HERRINGBONE TWILL (d) | 2 |
| 22 LEGGINGS, CANVAS, M-1938, OD, DISM'T | 2 |
| 23 NECKTIE, COTTON, MOHAIR, KHAKI | 2 |
| 24 RAINCOAT, DISMOUNTED | 1 |
| 25 SHIRT, COTTON, KHAKI | 3 |
| 26 SHIRT, FLANNEL, OD, COAT STYLE | 2 |
| 27 SOCKS, COTTON, TAN | 3 |
| 28 SOCKS, WOOL, LIGHT, or WOOL, HEAVY | 3 |
| 29 SHOES, SERVICE | 2 |
| 30 OVERSHOES, ARCTIC (a) | 1 |
| 31 TROUSERS, COTTON, KHAKI | 3 |
| 32 TROUSERS, WOOL, OD | 2 |
| 33 UNDERSHIRT, SUMMER, SLEEVELESS, or 2 EA MAY BE UNDERSHIRT, WOOL | 5 |

| AUTHORIZED ALLOWANCES | T/E 21 |
|---|---|
| 34 COMB, RUBBER or PLASTIC | 1 |
| 35 BRUSH, TOOTH | 1 |
| 36 RAZOR, SAFETY, W/5 BLADES | 1 |
| 37 BRUSH, SHAVING | 1 |
| 38 TOWEL, BATH | 1 |
| 39 BAG, BARRACK | 2 |
| 40 BELT, CARTRIDGE, CAL .30, DISM'T M-1923, or | 1 |
| BELT, PISTOL or REVOLVER, M-1936 | 1 |
| 41 TOWEL, HUCK | 2 |
| 42 BLANKET, WOOL, OD, M-1934 | 2 |
| 43 CUP, M-1910 | 1 |
| 44 CANTEEN, M-1910 | 1 |
| 45 POUCH, FIRST AID PACKET, M-1942 | 1 |
| 46 POLE, TENT, SHELTER | 1 |
| 47 CAN, MEAT, M-1932 | 1 |
| 48 KNIFE, M-1926 | 1 |
| 49 FORK, M-1926 | 1 |
| 50 SPOON, M-1926 | 1 |
| 51 COVER, CANTEEN, DISM'T, M-1910 | 1 |
| 52 BAG, CANVAS, FIELD, OD, M-1936, with SUSPENDERS, BELT, M-1936, and | 1 |
| STRAP, CARRYING, OD, BAG, CANVAS FIELD or HAVERSACK, M-1928, with CARRIER, PACK, M-1928 | 1 |
| 53 MASK, GAS, SERVICE | 1 |
| 54 ANTIDIM | 1 |
| 55 NECKLACE, IDENTIFICATION TAG, with EXTENSION (a) | 1 |
| 56 TAG, IDENTIFICATION, (a) | 2 |

NOTES

(a) WHEN AUTHORIZED BY COMMANDING OFFICER
(b) ISSUED TO MECHANICS IN PLACE OF one (c)
HAT, HERRINGBONE TWILL
(d) CLERKS ISSUED ONLY 1 EACH
(e) WORN ON PERSON




TIES




BELT - PISTOL

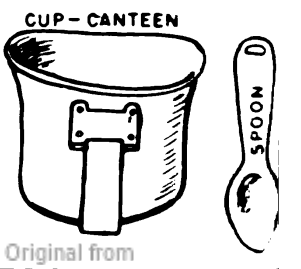



BELT - RIFLE

INSIDE RIGHT AMMUNI

IN ACCORDANCE WITH CHANGE NO. 4 A R 850-5, THESE ITEMS DO NOT REQUIRE MARKINGS

CUP - CANTEEN




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# NG & EQUIPMENT

THE MARKING OF EQUIPMENT AND CLOTHING IS IN ACCORDANCE WITH A R 850-5 UP TO AND INCLUDING CHANGE NO. 6, WD MARCH 4, 1943

NOTE: 1 THE FIRST NAME, MIDDLE INITIAL, AND LAST NAME AS WELL AS FULL SERIAL NUMBER IS PUT ON BOTH BARRACKS BAGS

2 ONLY LAST FOUR NUMBERS OF SERIAL NUMBER ON OTHER EQUIPMENT

3 INITIAL OF LAST NAME AND LAST FOUR NUMBERS OF SERIAL NUMBER ON CLOTHING. USE DASH BETWEEN INITIAL AND NUMBER

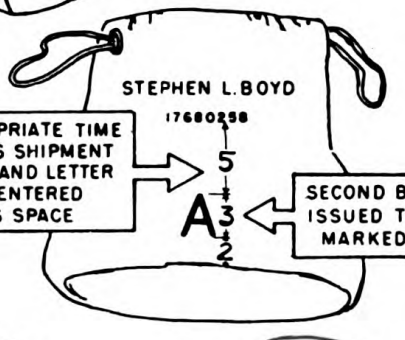
*MAKE ALL REQUIRED MARKINGS LEGIBLE*




BAG-CANVAS FIELD



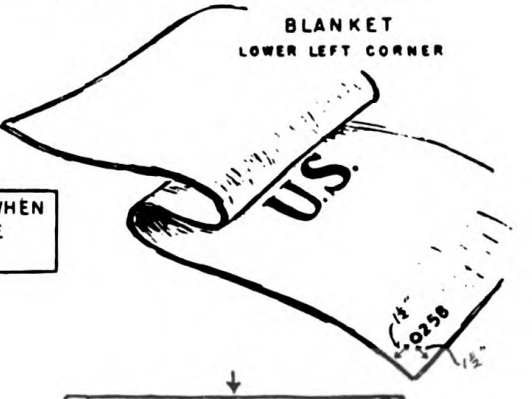

IRIER




AT APPROPRIATE TIME OVERSEAS SHIPMENT NUMBER AND LETTER WILL BE ENTERED IN THIS SPACE

SECOND BAG WHEN ISSUED TO BE MARKED "B"

BLANKET
LOWER LEFT CORNER

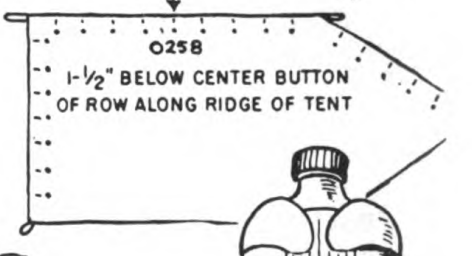








SHOES — OVERSHOES
(USE PAINT)



















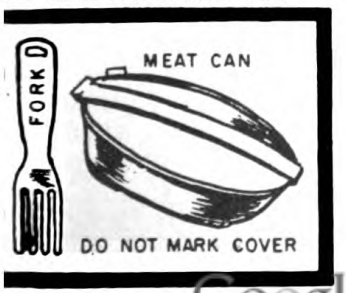


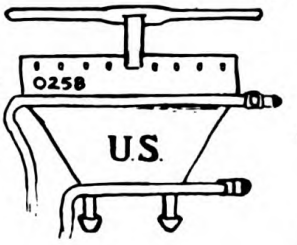




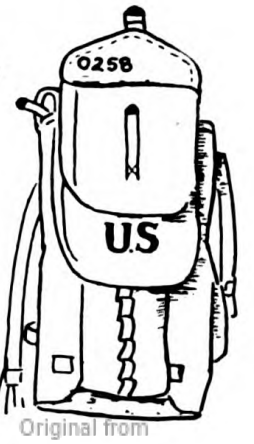
CARRIER PACK

OUTSIDE BETWEEN FIRST AND SECOND BUTTON-HOLES FOR COUPLING STRAP IN ONE OR TWO LINES, BEGINNING ON THE SAME SIDE AS THE "U" OF THE "U.S."




HAVERSACK
INSIDE OF FLAP OF MEAT-CAN POUCH NEAR LEFT HAND EDGE




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it vertical when the rope is taut. The even numbered man then adjusts the rear tent pole through the eyelets in the rear of the tent. The odd numbered man pins down the rear of the tent and drives the rear guy pin so that it is a bayonet length in rear of the rear pin of the triangle. If he is not armed with the bayonet, he drives the rear guy pin two and a half tent pin lengths from the rear triangle pin. He then adjusts the guy rope. The even numbered man then drives the remaining pins on the left of the shelter tent and the odd numbered man drives them on the right.

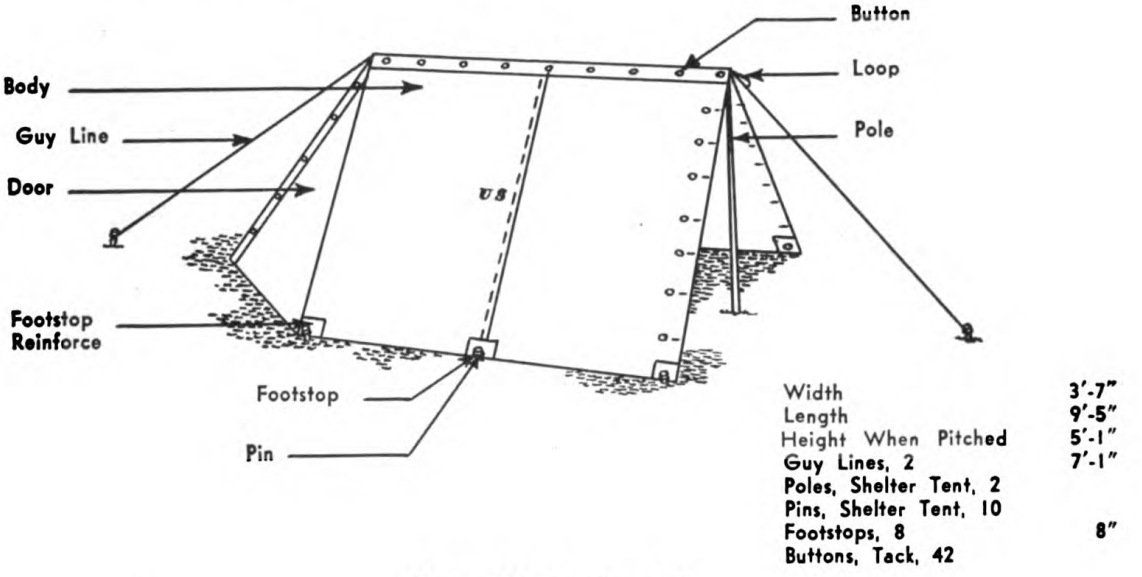



**Figure 104. Shelter Tent.**

*Double Shelter Tents.* The double tent camp is preferable to the single tent camp in cold or inclement weather because of the added shelter it affords. It is useful in restricted areas because of its greater concentration of personnel. The double tent is composed of two single tents buttoned together at the square ends. The tent is supported by three poles, one in the center and one at each end.

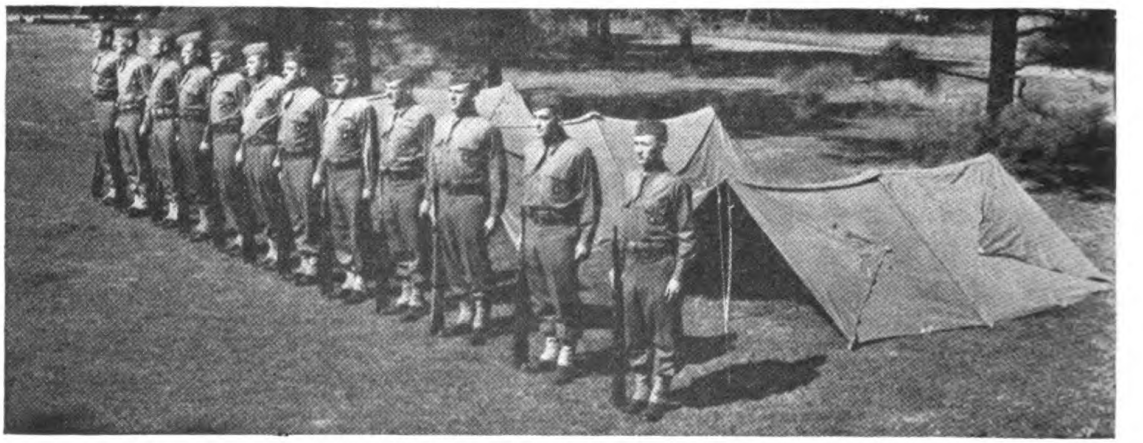


**Figure 105. Double Shelter Tent.**

*Wall Tent.* The officer or noncommissioned officer in charge selects suitable ground. He indicates the direction in which the tent is to face, the line on which the tent is to be placed, and the position of the door pin. Four men are required to pitch each tent.

First, a pin is driven to mark the center of the door. Then the tent is spread on the ground it is to occupy, the door loops being placed over the door pin. The

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front corners are drawn taut, alined, and pegged down. The rear door is laced, if there is one. Rear corners are drawn taut in both directions and pegged down. Then the four corner guy pins are driven in prolongation of the diagonals of the tent and about two paces beyond the corner pins. The front door is temporarily loosened and the two corner loops on one side only are loosened from the corner pins. The ridge pole is inserted between the ventilation strip and the tent ridge. The upright eyelet pins are inserted in the ridge pole and in the eyelets of the tent. The fly eyelets are placed over the end-pole eyelet pins. The tent is raised and held in position. The two loosened corner loops are replaced and the corner and fly guy ropes secured and tightened to hold the poles vertical. The wall pins are driven through the open loops as they hang. Finally, the intermediate guy pins are driven in alinement with the corner guy pins already driven.

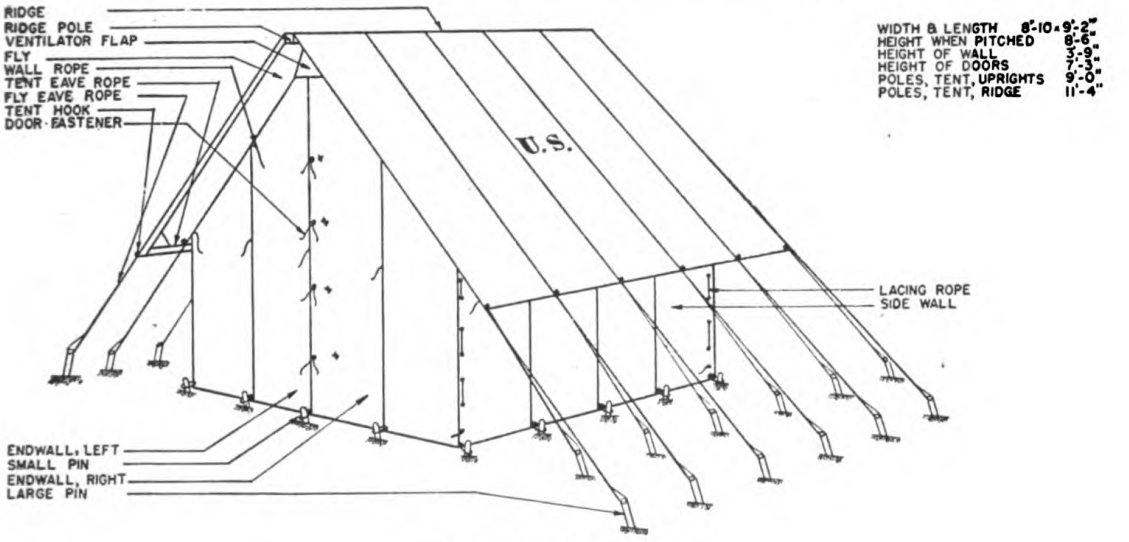



**Figure 106. Wall Tent.**

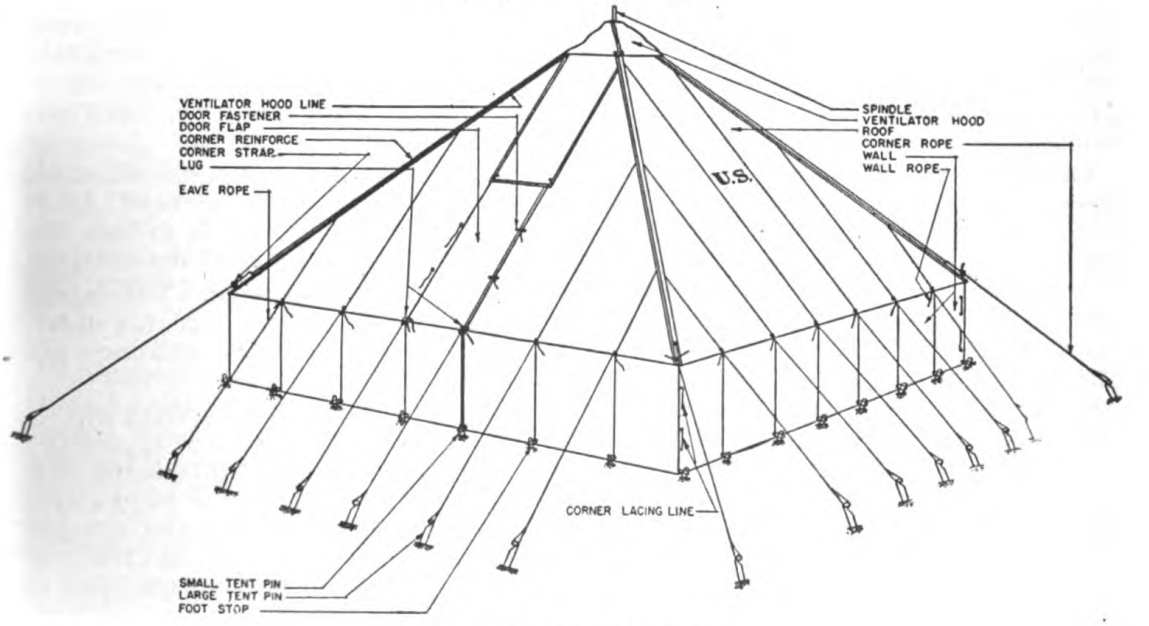
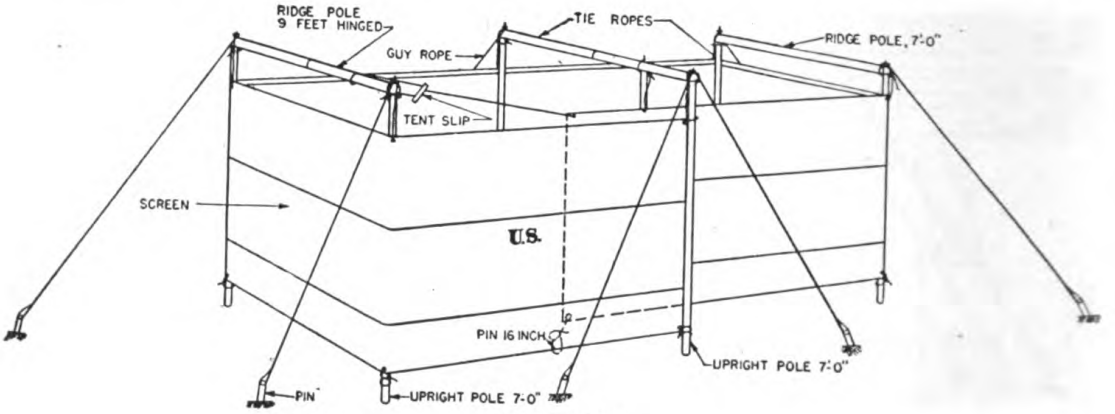



**Figure 107. Pyramidal Tent.**

*Pyramidal Tent.* The commander designates the ground on which the tents are to be erected. The line of tents is marked by driving a wall pin on the spot to be occupied by the right front corner of each tent. The interval between adjacent marking pins should be 30 feet, which leaves a space of about 2 feet between tents. Each tent is usually erected by the squad which will occupy it.

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The tent is next spread on the ground which it is to occupy, door to the front. The corners and door are laced and the right front wall loop is placed over the corner pin already driven. The left corner wall loop is carried to the left as far as it will go, and a wall pin driven through it, in line with the right corner pins already driven. The rear corner wall loops are pulled to the rear and outward, so that the bottom of the rear wall of the tent is stretched to complete the square. Wall pins are then driven through these loops. Each rear corner pin should be directly in rear of its corresponding front corner pin to form the square. Unless the canvas is wet, a small amount of slack should be allowed before the corner pins are driven. Three men crawl under the tent and fit the pole into the rings, and such accessories as hood, fly, and tripod are adjusted.




① Side view.

**Figure 108. Latrine Screen—Side View.**

Steadied by one man at each corner guy rope, the tent is then raised by the men underneath. The four corner guy ropes are then placed over the lower notches of large pins, which are driven in prolongation of the diagonals at such distances as to hold the walls and ends of the tent vertical and smooth when the guy ropes are drawn taut. A wall pin is then driven through each remaining loop, and a large pin for each guy rope is driven in line with the four corner guy pins already driven. The guy ropes of the tent are placed over the lower notches of the large pins. All ropes are then drawn taut.

**Latrine Screen Pitching.** A detail of six men, supervised by a noncommissioned officer, is required to pitch the latrine screen. The noncommissioned officer selects suitable ground, indicates the direction in which the screen is to face, the line on which it is to be placed, and the position of the inside corner of the entrance.

A tent pin is driven to mark the inside corner of the entrance. The latrine screen is unfolded and the end having both a long and a short tie rope (as differing from the end having two short tie ropes) is placed near the entrance pin. The short tie rope on the bottom of the screen is tied to this pin.

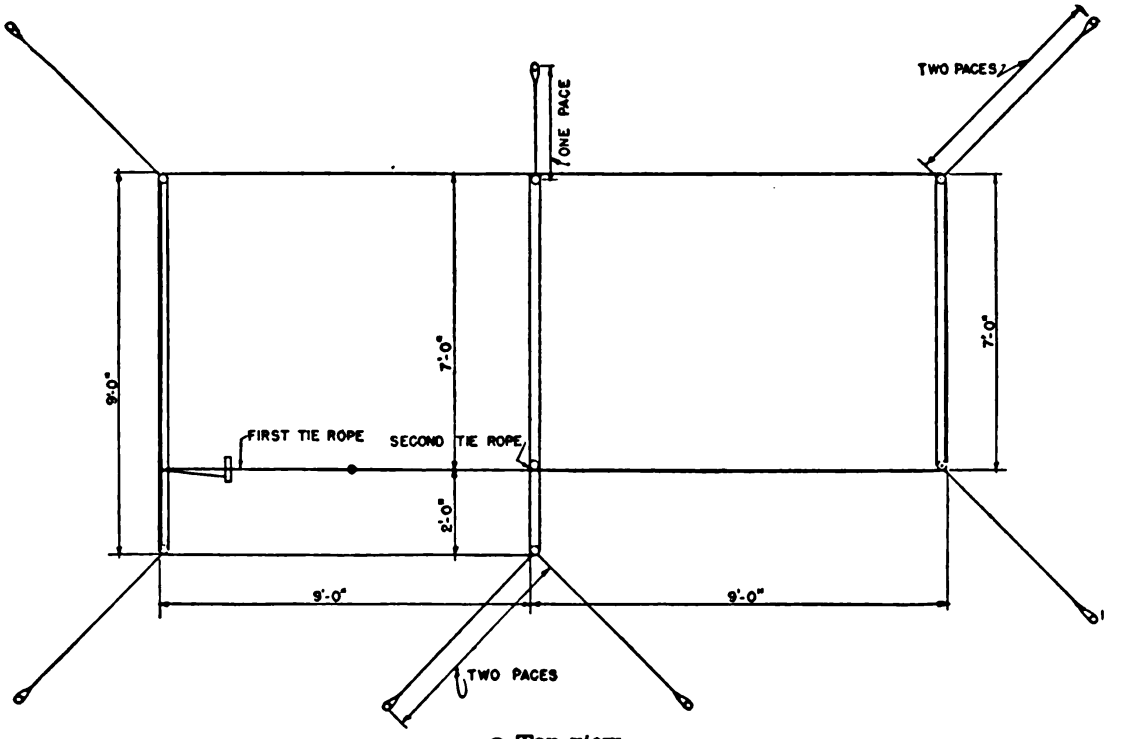
The latrine screen is laid on the ground following generally its final outline (see fig. 108). A long ridge pole and three uprights are assembled and raised to a vertical position near the center of the latrine screen. The uprights being held in position, two center guy rope pins are driven in two paces from the front center upright and generally in prolongation of the diagonals from the right and left rear corners of the latrine screen through the front center upright (see fig. 109). A third guy rope pin is driven about one pace from the rear center upright and on line with the three uprights. Guy ropes are placed over these pins and over the upright eyelet pins and tightened. The latrine screen is raised on the outside of the inner and rear uprights and is tied to the ridge pole with the bottom about six inches from the ground.

At the narrow end of the screen a short ridge pole and two uprights are assembled and held in position. Guy rope pins are driven in about two paces from the uprights and in prolongation of the diagonals from the inner center and rear center uprights. Guy ropes are attached as before. The latrine screen is raised

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on the outside of the uprights and is tied to the ridge pole so that the bottom is about six inches from the ground.

Before the long ridge pole and uprights are assembled to form the wide end of the latrine screen, the long tie rope from the top of the inside corner of the entrance is passed over the ridge pole. The upright eyelet pins are inserted in the two outside holes of the ridge pole and the uprights are raised and held in place. The two remaining guy rope pins are then driven. All four front guy rope




③ Top view.

**Figure 109. Latrine Screen—Top View.**

pins are not on the same line. (See fig. 109). Guy ropes are attached and tightened. The latrine screen is raised and tied to the end ridge pole and the outside of the entrance is tied to the center ridge pole. The long tie rope from the top of the inside corner of the entrance is drawn taut. All tie ropes on the lower edge of the latrine screen are tied to the uprights. Any slack is taken out of the screen by a final tightening of the guy ropes and, if necessary, by shifting the upright poles.

## PHYSICAL TRAINING

Throughout history, military leaders have recognized the importance of physical fitness to the success of their armies. The success of the Persians, Greeks, and Romans was indeed due, in no small part, to the rugged, tough, well-conditioned fighting men these nations produced. In all these countries, physical conditioning was begun for the individual in early youth and was continued on until middle age. Just as soon as "soft living" undermined these nations, they were soon conquered by a tougher people.

Today, as throughout history, physical prowess is just as necessary to the success of an army. To march many miles over rough terrain, to go for days without sleep, to fight with the bayonet, and to kill, all require a state of physical condition far above anything that is called for in civilian life.

The problems being encountered in the conditioning of troops in this war are more crucial than ever. Despite our advances in medicine and in public health, the modern machine has emancipated man from much vigorous muscular activity and reduced the amount of physical labor required in everyday work. Therefore it is imperative that a revision be made of the traditional method of condi-

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tioning troops. Physical conditioning programs must of necessity be intensified and expanded if our men are to be conditioned properly for combat service.

**Calisthenics.** The core of every physical training program is calisthenics. They have a number of advantages: (1) they are readily adapted to large groups; (2) they can be conducted anywhere; (3) they require no equipment; and (4) if properly selected, they will reach and develop any desired muscle group in the body. Calisthentics however, are practically valueless unless they are properly performed. It is essential that the men put everything they have into the work in order to derive the best results.

Of the many types of calisthentics in existence today, the Danish System of gymnastics is one of the best. The greatest value can be derived from calisthenics when freedom from rigidity of movement is attained; this informality of movement is the paramount feature of the Danish system. The exercising is begun when the instructor commences to swing his arms in a continuous manner across his chest and out to the 'arms sideward raise' position. All exercising is done 'at ease.' From the arm swinging, the instructor goes into a demonstration of the first exercise. The students, just as soon as they see what is to be done, commence imitating the instructor. When the instructor wishes to end that particular exercise, he simply commences swinging his arms again. This procedure is followed throughout the calisthentics period without command or spoken instructions.

Whenever an exercise requires the student to bend or bob, he will do so 3 times consecutively. This is also typical of the Danish System.

A period of calisthentics of this type will usually consist of ten exercises arranged in such a way as to be physically progressive.

*Alternate Leg Stretch.* Starting position: sitting on ground, legs spread at 45° angle. Reach forward and grasp the left foot with both hands, knees straight. Pull body forward; bobbing 3 times. Recover. Repeat to the right.

*Alternate Touching Toes.* Starting position: side straddle, arms sideward. Bend trunk forward on the count of one, touching the toes of the left foot with the right hand. Recover with a snap on two: bend trunk forward touching the toes of the right foot with the left hand on the count of three, recover with a snap on four. The arms remain in the plane of the shoulders throughout the exercise.

*Arms from Low Cross to Flight.* Starting position: attention with fists closed and arms crossed in front of stomach, hanging to their full extent. Throw arms out to the side horizontal with a snap on the count of one; recover on two.

*Break in the Middle.* Starting position: lying flat on the back, feet together, arms fully extended above head. Bend at the waist and simultaneously touch the feet and hands in mid-air as balance is maintained on the buttocks; lower slowly to the starting position.

*Fingers, Fists, and Palms.* Starting position: attention with hands on hips. Bend trunk forward touching the toes with the fingers; on the second bob downward, touch the fists to the toes; and on the third bob, touch the palms to the toes; recover to the starting position.

*Cross Leg Exercise.* Starting position: lying flat on back, arms out on 45° angle to side, palms down. Swing the right leg over the left and touch the ground with the right toes to the left of the left leg. Recover. Swing the left leg over the right and touch the ground with the left toes to the right of the right leg. Recover.

The first 10 exercises that are listed below were designed to be used as a group in themselves in order to reach practically every possible muscle needed by the soldier. It is essential that they be given in the sequence listed here. When ground conditions prohibit assumption of the supine position, substitute exercises are needed.

(1) *The High Jumper.* Starting position: feet separated about 12 inches, knees slightly bent, arms raised backwards, body bent slightly forward at the waist. Swing arms forward and jump upward. Swing arms backward and jump upward. Repeat several times.

This is essentially a warm-up exercise. It is a total body movement involving the legs, arms, and trunk. This exercise also develops coordination.

(2) *Burpee.* Starting position: attention. Bend slightly at the knees and sharply at the hips; place hands on the ground in front of the feet in a squat position with

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the elbows inside the knees. Thrust feet and legs backward to a front leaning rest position with body straight from shoulders to feet, weight supported on hands and toes. Return to the squat position. Resume standing position.

This is one of the best exercises to develop agility. It reaches and strengthens primarily the muscles of the trunk, thighs and hips. It also serves as a warm up exercise.

(3) *Squat Bender.* Starting position: standing with feet slightly separated and arms held in a loose thrust position. Full squat thrust arms forward, fingers extended, palms down, keep trunk erect. Return to original position. Bend forward sharply, thrusting downward with fingers touching toes, knees straight. Return to starting position.

This exercise strengthens the heavy muscles of the legs and thighs as well as the trunk forward-bending muscles. It has excellent posture benefits. When the knees are kept straight in the forward bend, the exercise has a limbering and loosening effect upon the hamstring muscles.

(4) *Side Bender.* Starting position: standing with feet apart about 2½ feet, hands clasped overhead, arms straight. Bend sideward sharply to the left, Bending the left knee. Bend straight to the side, do not twist the torso or shoulders. Recover slightly and repeat. Recover and repeat. Return to starting position. Same exercise on right side.

This has the effect of exercising the lateral muscle system of the trunk and also develops suppleness and coordination.

(5) *Back Twist.* Starting position: flat on back, arms extended sideward, palms down, legs raised to a right angle with feet together, knees straight. Lower legs to the left, twisting the torso, touching ground on left side in vicinity of left hand. Keep knees straight. Return to the starting position. Lower legs to right, twisting torso, touching ground on right side in vicinity of right hand. Keep knees straight. Return to starting position.

This exercise strengthens the oblique abdominal muscles. It also has a very beneficial effect upon the abdominal viscera.

(6) *Squat Jump.* Starting position: full squat with left foot forward about 8 inches, hands clasped on top of head. Spring upward from this squat until knees are straight and both feet have left the ground. Change the position of the feet, the right foot becoming the forward foot and the left the rear. Drop to squat on the left heel. Jump and alternate feet.

This exercise strengthens the heavy muscles of the legs and limbers up the joints of the hips, knees, and ankles. It brings about a greater flexibility and agility in the legs.

(7) *Trunk Twister.* Starting position: standing with feet about 2 feet apart and sideward, with hands clasped behind head, elbows held backward, and chin in. Bend and bounce downward knees straight. Recover slightly. Do this vigorously. Bounce downward but simultaneously rotate trunk sharply to left. Same to the right. Return to original position, pulling head back and chin in strongly.

This exercise reaches and strengthens all muscles of the trunk. It has excellent posture benefits and results in greater flexibility of the lower back region.

(8) *Stationary Run.* Starting position: standing with arms in loose thrust position. Stationary run. Begin slowly; speed up somewhat, raising knees to height of hips, then run at full speed, raising knees hard, then slow down. This exercise develops cardio-respiratory endurance. While it reaches most of the body except the arms its primary effects are upon the heart and legs.

(9) *Eight Count Pushups.* Starting position: attention. Bend slightly at the knees and sharply at the hips and place hands in front of feet in squat position. Thrust feet and legs backward to a front leaning rest position, with the body straight from shoulders to feet, weight supported on hands and toes. Touch chest to ground. Return to front leaning rest position. Touch chest to ground. Return to front leaning rest, position. Return to squatting position. Return to starting position.

This exercise strengthens the arm and shoulder extensor, trunk bending and leg muscles.

(10) *The Woodchopper.* Starting position: feet about 2 feet apart, trunk turned left, hands clasped together, arms thrust over left shoulder, head facing

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front. In a chopping movement, bend the trunk forward, bringing arms down vigorously between legs. Bend knees slightly. Extend arms as far behind legs as possible. Raise the trunk and assume the same position as in the starting position but with the trunk turned right and hands over the right shoulder. Repeat the first movement.

This exercise strengthens the muscles of the trunk and abdomen. It also stretches the hamstring muscles and has a stretching and massaging effect on the abdominal viscera.

## GRASS EXERCISES

Grass exercises or drills have been used for years by football coaches to condition their squads. These exercises develop muscular endurance and agility. In addition, they teach such practical skills to the soldier as dodging, getting down to the ground and up again quickly, etc. The name 'Grass Drills' does not imply that grass is an essential for the exercises.

Following is a list of the exercises and their commands:

*GO. STOP.* At the command 'go', the men do a stationary run. At the command 'stop', they stop and drop to the lineman's crouch.

*FRONT.* At the command 'front', the men flop down quickly on their stomachs.

*UP.* At the command 'up', they leap to their feet and do a vigorous stationary run until the next command is given.

*BACK.* At the command 'back', they drop down to their backs, feet toward instructor (if on their stomachs, the command 'back' means to flop over onto their backs by thrusting their legs through the arms).

*SIT-UP.* On back, arms overhead, sit-up, knees straight, reach forward touching toes with hands. Return to ground, slowly.

*LEGS OVER HEAD.* On back, arms overhead, swing legs up and back overhead, touching toes to ground behind head.

*BICYCLE.* On back, legs above trunk, elbows at side, hands on hips holding hips off ground, make vigorous bicycling movements.

*HEAD AND FEET UP.* On back, arms at side, palms on ground, with knees straight, raise legs and trunk from ground, sitting up vigorously on buttocks.

*LEGS RIGHT AND LEFT.* On back, arms stretched sideward, palms on ground, legs vertical, swing legs sideward right and left until legs almost touch ground. The faster this is done the more vigorous is the movement.

## NOTES

1. Grass exercises should be run continuously for 5 minutes.
2. Vary the commands, so men can not anticipate the next movement, and so that two ground exercises are not given in succession.
3. Give 6 to 8 repetitions of any one ground exercise.
4. These exercises build endurance and men should continue to drive even after they are tired.

## GUERRILLA EXERCISES

These movements are designed to prepare and train soldiers for guerrilla warfare; at the same time they provide vigorous exercise. Because of the large number suggested, a selection of exercises will be necessary when they are employed.

These exercises are best conducted in a circle formation. The circle should be larger for guerrilla exercises than for calisthenics. An interval of about 8 ft. should separate the men and this interval must be retained. Each guerrilla exercise is normally done for a period of 20 to 30 seconds. Such activities as the broad jump and rolls should be done a definite number of times. To provide an interesting variation, many of the guerrillas can be done to the right, left, rear, or at double time.

For some of the guerrillas it is better to have the men execute an about face and perform the activity 4 or 5 times away from the center of the circle. Then they execute an about face and repeat, this time coming toward the center of the circle. Such guerrillas as the broad jump, rolls, and crawls are better done in this fashion.

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As the men march at route step about the circle the instructor indicates the name of the exercise and follows it with the command of execution. Thus: 1. BEAR WALK, 2. MARCH. After the group has performed this activity for an appropriate distance, the instructor returns them to their original position with the command: 1. QUICK TIME, 2. MARCH. If the instructor desires to intensify the guerrilla exercise he may go immediately to another guerrilla exercise without returning the men to the erect position. Thus, when the men are executing the bear walk he might give the command: 1. FROG JUMP, 2. MARCH. The guerrilla exercises are listed below.

**Ground Exercises.** *All Fours.* Face down on hands and feet, walk forward.

*Bear Walk.* Face down on hands and feet. Travel forward by moving the right arm and right leg simultaneously and then the left arm and left leg simultaneously. Keep knees straight.

*Leap Frog.* Count off by twos. At start, odd leap over even numbers. At next start, even numbers leap over odd. The men go clear around circle until they return to original position. Men bending should face forward.

*Bouncing Ball.* Support body on hands at shoulder width, feet apart; back and legs in line, knees straight. Travel forward by means of series of short upward springs of hands and feet simultaneously.

**Squat Bend Exercises.** *Duck Waddle.* Assume squat position. Walk forward with hands on hips.

*Squat Jump.* Assume squat position; jump forward with hands on hips.

*Indian Walk.* Bend knees slightly, bend trunk forward, arms hanging down until the fingers touch the ground. Retain this position, and walk forward.

*Crouch Run.* Lean forward at the waist until trunk is parallel with the ground. Retaining this position, run forward at a jogging pace.

*Steam Engine.* Clasp hands behind the neck, walk forward in the following manner. As the left leg is brought forward, raise the knee, bend the trunk forward, and touch the right elbow to the left knee then step forward onto the left foot, and raise the trunk. Repeat with the right leg, and left elbow, continue in this fashion.

**Erect Exercises.** *Walk On Toes.* Walk forward on the toes.

*Fast Walk.* Walk forward at fast pace, swinging arms vigorously but avoid running.

*Straddle Run.* Run forward, leaping to the right as right foot advances, leaping to the left as left foot advances.

*Knee-raise Run.* Run forward, raising the knee of the advancing leg high as possible on each step.

*Hop.* Travel forward by hopping on the left foot. Take long hops. Change to right foot and repeat.

**Double Exercises.** Pair off group according to height and weight and have the group count off by twos. Have *ones* carry *twos* to start and at the command 'change', reverse procedure.

*Army Carry.* One, standing, facing Two's side, bends his knees and leans forward, placing one arm behind Two's back and one arm under Two's knees. One straightens up, lifting Two from the ground. Two places near arm around One's shoulder and clasps his other hand. Retaining this position, One runs forward 30 to 60 paces.

*Fireman's Carry.* One, standing sideways in front of Two, bends his knees, and leans forward, placing one arm through Two's crotch. Two leans forward until he lies across One's shoulders. One straightens up, lifting Two off the ground. One, using the hand of the arm through Two's crotch, grasps the wrist of Two's arm that is hanging over his shoulder. Retaining this position, One runs forward 30 to 60 paces.

*Cross Carry.* One, standing sideways in front of Two, leans forward. Two bends forward until he is lying across the middle of One's back. One then places one arm around Two's knees and one arm around Two's shoulders, and straightens up lifting Two from the ground. Retaining this position, One runs forward 30 to 60 paces.

*Single Shoulder Carry.* One, standing in front of and facing Two, assumes a

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semi-squatting position. Two leans forward until he lies across One's left shoulder. One clasps his arms around Two's legs and straightens up, lifting Two from the ground. Retaining this position, One runs forward 30 to 60 paces.

## RUNNING EXERCISES

Running is an activity all men may be required to perform when assigned to combat service. It is also one of the best single conditioning activities known and should be an integral part of every physical conditioning program. It is recommended that running to and from the exercise area be conducted every day. It serves to develop muscular and cardio-respiratory endurance that is important in active fighting.

Aside from running obstacle courses and steeple chases, these exercises include road or drill field running and cross country running.

Many men do not know how to run so it is advisable to start off by teaching them. In running, lean slightly forward, keep the head up, lift the knees well out in front, and point the toes straight ahead. Run on the balls of your feet, not the heels. The arms must be swung smoothly and freely from the shoulders with the elbows bent and the fists relaxed. Do not confine cross country running to level areas, as running over rough terrain should be included.

The group may range in size from a platoon to a company. Leaders should be stationed at the head and rear of the column and every effort should be made to keep the men together. In the beginning, the running is largely slow jogging alternated with periods of walking. As the endurance of the men improves, the running should be increased and the time for walking decreased, Gradually, the speed of the run is increased with occasional sprints introduced from time to time. During the preliminary stages the cross country running should be short (1 to 2 miles) and should be gradually increased to the point where it is about 20 to 30 minutes in duration. On completing the run, men should be required to walk slowly for 3 or 4 minutes before stopping.

Running exercises may be conducted by having squads follow the leader at 50 yard intervals; each squad to cross terrain features in the same manner as the one immediately ahead.

## OBSTACLE COURSE

Several important considerations are involved in obstacle course running. The first is the obstacle course itself. Some courses are so short and easy that they are of little value in developing endurance. Others are so long and punishing that it is almost impossible to get men to extend themselves completely. Many obstacle courses are lacking events which require the use of the arm and shoulder girdle muscles.

Men should not be required to run the obstacle course too often, but when they do, they should be expected to run at full speed; jogging over and obstacle course is of doubtful value. Before they run an obstacle course, the instructor should take the men to each obstacle and explain and demonstrate the proper technique of surmounting it. The men should then practice these techniques until they have mastered them. It is only after this procedure has been followed for each obstacle that the men should run the entire course at full speed.

## LOG EXERCISES

These exercises are of a very strenuous nature. They were designed to develope strength, endurance, coordination, and teamwork. They do not take the place of but are to be given as an addition to calisthenics.

Exercises with logs should not be included in the training schedule of a unit until after the fourth week of training and then they should be gradually worked in to the program starting with simple exercise and progressing to more difficult ones systematically.

Five or six logs 6" to 8" in diameter, 16 to 18 feet long, with all knots cut off smooth are needed. Logs are placed in line in two ranks, four paces interval between logs, six paces distances between ranks. Each platoon is sized according to height and divided into groups of eight men each. Each group forms in line at close interval behind logs assigned to it. Exercises shown here can be combined in any order.

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**Starting Positions.** These are the positions from which the various exercises originate and terminate:

1. STARTING, 2. POSITION. At the command POSITION, move the left foot smartly 12 inches to the left and lower into a flat foot squat with the back flat, head up, and arms between legs. The left hand encircles the far side of the log and the right hand is underneath the log. This position is standard unless otherwise ordered.

1. LEFT HAND STARTING, 2. POSITION. Performed same as the above except the left hand is underneath the log and the right hand encircles the log on the far side.

1. RIGHT SHOULDER, 2. PULL. At the command PULL, the log is pulled upward in one continuous motion to the right shoulder. At the same time the left foot is moved to the rear and the exerciser stands up facing to the left with the log resting on the right shoulder, balanced with both hands.

1. LEFT SHOULDER, 2. PULL. Performed same as above, except that it starts from the left hand starting position, and the exerciser ends up facing right.

1. WAIST HIGH, 2. PULL. From the standard starting position the log is pulled waist high with the arms straight and fingers laced underneath the log. In this position the body is inclined slightly to the rear and the chest is lifted and arched.

*Two Arm Press.* Starting position: Right or left shoulder. The log is pushed overhead at the count of One, to the left shoulder on Two, pushed overhead on the count of Three, and to the right shoulder on Four.

*Full Squat on Toes.* Starting position: Right or left shoulder. The body is lowered into a quarter squat on One, a half squat on Two, a full squat on Three, and recover to original position on Four. Exhale going down and inhale coming up.

*Dead Lift.* Starting position: Waist high. The log is lowered until it is two inches above the ground on the count of One, on the count of Two it is returned to the starting position. Three and Four are repetitions of One and Two. Throughout the exercise the knees are held straight. Exhale going down and inhale coming up.

*Straddle Hop.* Starting position: Right or left shoulder. Hop to side straddle position on One; recover on Two. Three and Four are repetitions of One and Two.

*Team Toss.* Two teams of eight men are lined up facing each other, three to six paces apart. Team A holds the log with underhand grip in the crook of their arms, bodies erect. At the preparatory command of ready, they all sink in to a quarter squat. At the command TOSS, the log is tossed out and up by the combined drive of the legs and arms. It is caught by Team B which in turn tosses it back. The distance between teams may be gradually increased.

*Overhead Toss.* Starting position: Right or left shoulder. The log is tossed high into the air on the command TOSS and caught with both hands lowering towards the opposite shoulder. From here the command TOSS is repeated. As the log is caught the body is lowered into quarter squat.

*Chest Pull.* Starting position: Waist high. The body is inclined forward at right angles from the hips. From this position the exercise starts. The count of One, the log is pulled upward until it touches the chest; on Two it is lowered to a hanging position. The body does not move. Inhale as the log is pulled up and exhale as it is lowered.

*Duck Walk.* Starting position: Right or left shoulder. Settle into a full squat on toes. Move forward in cadence taking six-inch steps, while maintaining a straight back and a deep squat.

## MARCHING

Standards for marching with full field pack are set up. It is not intended that the physical training period be employed to develop marching ability and stamina; however, the physical training period might be utilized to test the troops to determine how they measure up to recommended standards. The ability to march effectively is of vital importance, but it is not considered advisable to devote much physical training time to it.

The following standards are to be met by marching with full field equipment:

1. March 4 miles in 45 minutes
2. March 5 miles in 1 hour
3. March 9 miles in 2 hours

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4. March 16 miles in 4 hours
5. March 25 miles in 8 hours
6. March and double time for 7 miles without a halt.

## UNARMED COMBAT

One of the first things that a person should understand is that when an assailant attacks him with a gun, knife, or club he is by no means being fair and the only reason that he is using these weapons is to kill or maim. Therefore, the defense that is used against such tactics need not be fair. In every day life a kick in the groin or an eye gouged out would be looked on as foul and dirty tactics but when a person is fighting for his life he should use anything that he can to subdue his opponent, and the more effective the better. The title for this chapter should be Unarmed *Offense* because it is only through offense that a fight can be won.

There have been lengthy manuals and texts written on the art of self defense, Judo, dirty fighting, how to be tough, etc. Some of the books are very good but the contents are hard to follow because the holds, breaks, and falls are quite complicated and require a lot of practice—a lot more practice than the average soldier is able to get. Some texts teach nothing but a series of 'tricks' that are generally not good because they will only work when the opponent does just what he is supposed to do.

One of the best ways to teach hand to hand combat or unarmed defense is to give the pupils the basic principals of balance and leverage so that they can be applied in any case. The principal of Judo and all the holds is that the person uses his maximum strength against his opponents weakest spots. These weak spots are usually the joints and the soft portions of the body. Therefore a kick in the groin is always effective because it is, needless to say, one of the most vulnerable places on the body.

## UNARMED OFFENSE

### OPPONENT'S WEAKEST SPOTS

a. *The Groin.* Very little need be said about striking, hitting, or grabbing for the groin. Any blow, no matter how light at this spot, while seldom fatal in itself, will always put the opponent in such pain that he is very easily disposed of. On the other hand, when fighting, every care must be taken to protect yourself from such blows. Whenever possible, keep your hip turned away from the opponent so that this spot can not be readily reached. See figure 110 and 111.



**Figure 110. Unarmed Combat—Groin and Eyes.**



**Figure 111. Unarmed Combat—Groin.**

b. *Eyes.* Another of the very sensitive spots on the body is the eyes. Very often all that is needed to finish a fight is to drive your thumb into your opponents eyes, and make a very determined effort to gouge the eye clear of the socket. In a fight where it is a case of life or death you should never hesitate to employ this method of bringing extreme pain to the foe. See figure 112 and 113.

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Figure 112. Unarmed Combat—Eyes.



Figure 113. Unarmed Combat—Eyes.

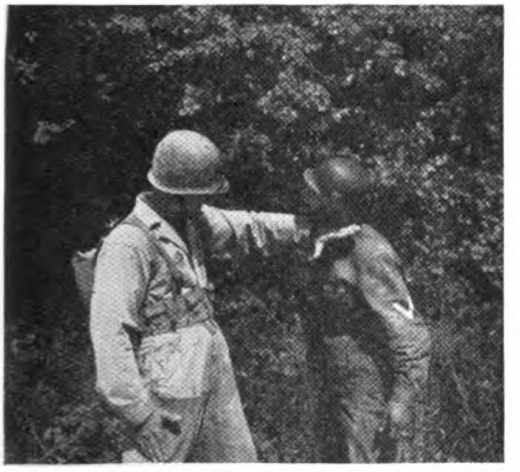


Figure 114. Unarmed Combat—Throat.



Figure 115. Unarmed Combat—Face.



Figure 116. Unarmed Combat—Joints.



Figure 117. Unarmed Combat—Joints.



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c. *Solar Plexus.* One of the most vulnerable spots on the body is the solar plexus. This spot is located just about an inch or two below the ribs and is extremely sensitive to any blow. A sharp hard blow in the solar plexus brings about paralysis of the diaphram muscles and the opponent is helpless to defend himself further. Although the fist is usually employed to strike the blow, it is much more effective to strike at this area with the hand extended so that the fingers and the 'offensive' part of the hand are employed. In this manner the hand will penetrate deeper into the diaphragm muscles and do a better job without danger of injuring the hand. The blow to this region is best delivered with the palm out and by driving the fingers in in an upward direction.

d. *The Throat.* Many a person has been put out of the fight by a single blow to the throat delivered in the correct manner. The front of the throat directly below or against the larynx will cause great suffering and if struck hard enough may result in death. Blows to this part of the body are best struck with the side of the hand. The hand should be held so that the fingers are straight and joined and the blow struck sharply and with all your strength. This type of blow may also be employed against the side and back of the neck with very good results. See figure 114.

e. *The Face.* The face itself is very open to blows. All blows struck at the face should be made with the side of the hand. The best places to strike are just under the nose and the bridge of the nose. The latter spot, if struck hard enough, will fracture the small bones in the face and cause splinters of bone to be driven into the brain resulting in almost instant death. See figure 115.

f. *Joints of the Legs, Arms, or Hands.* While an assault on these parts will not permanently disable your opponent he can be put out of the fight very easily. Nature made the joints of the arms and legs to bend only one way and if enough pressure is applied in the opposite direction dislocation or a fracture will be the result. The fingers can easily be broken by bending them individually until they break. See figure 116 and 117.

It has already been said that the only way to win a fight is to be on the offensive. But suppose that you are attacked first? In realiy, his is just what you want, because your opponent is concentrating on what he is trying to do and not on your defense; once it stops him, it becomes your offense automatically. If your opponent is rushing you, his forward momentum may be utilized to bring about his own downfall and save some of your strength. It is best to often feign fear or to give way with your opponent in order to give him the over confidence that in many cases is the reason for losing a fight.

In the space available here it is impossible to show all the holds, breaks, and falls that could possibly enter into a hand to hand fight or all the methods of disarming an opponent. The illustrations shown here, if studied, will give the basic principals upon which most of the offensive and defensive holds and breaks are based. In Basic Field Manual 21-150 a complete course in unarmed defense for the soldier is given and, if the training program will allow sufficient time, this manual can be followed for a more thorough coverage of the subject.

## DEFENSE AGAINST ATTACK BY OPPONENT

a. *Choke From the Rear.* One of the first things that a person approaching from behind will try to do is choke his 'victim'. If your assailant does this, there are several ways by which you can not only break the hold but render him helpless and finish the fight.

When your opponent grasps you by the throat, turn on the ball of the right foot to the right and throw the right arm up and over his arms. Keep turning until you have his arms grasped by your right arm. His feet can then be kicked out from under him and he will fall to the ground. (See figure 118 and 119.)

An alternate method that is more effective is to reach up with both hands and grasp the opponent by the sides of both hands or, better yet, by his little fingers. Pull both of his hands free and bend sharply at the waist, throwing him over your back. If the fingers are grasped, they will always break. (See figure 120.)

b. *Choke From the Front.* There are many ways that this hold can be broken. One of the simplest and most effective is shown in figures 121 and 122. The arms are driven up together and inside his with all your force. As he looses his grasp

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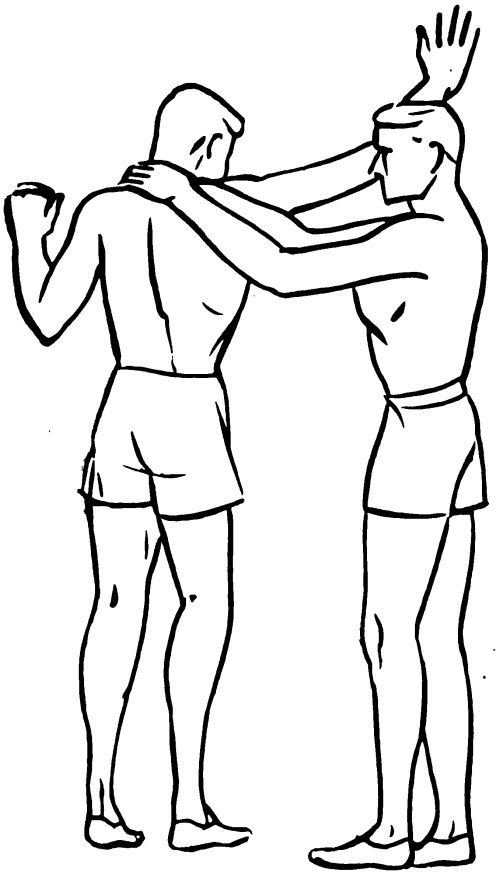


**Figure 118. Defense Against Attack.**

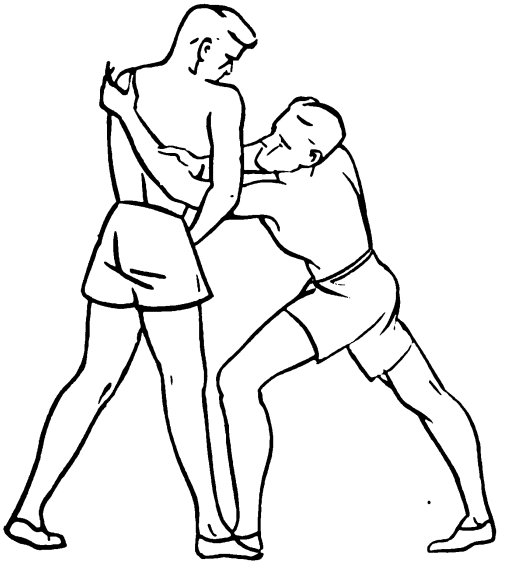


**Figure 119. Defense Against Attack.**

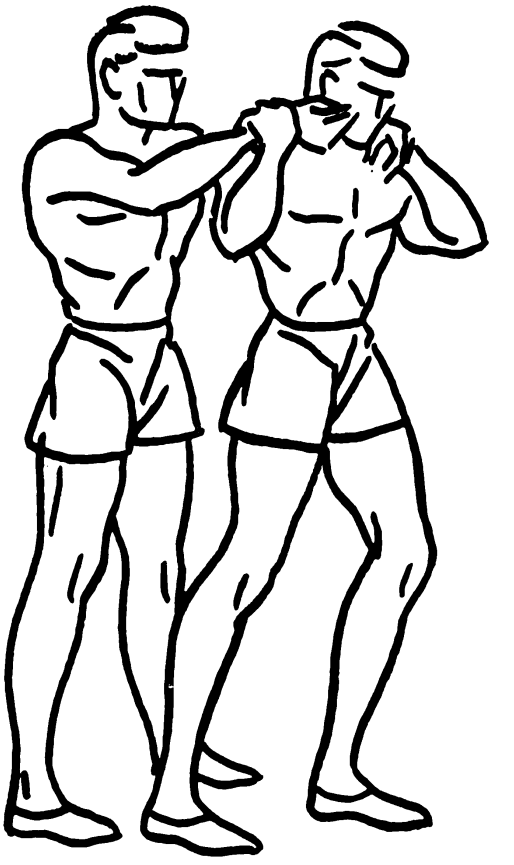


**Figure 120. Defense Against Attack.**

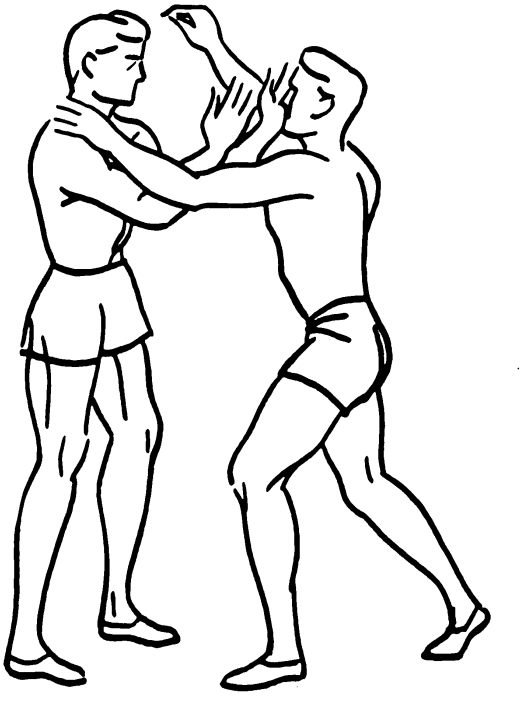


**Figure 121. Defense Against Attack.**

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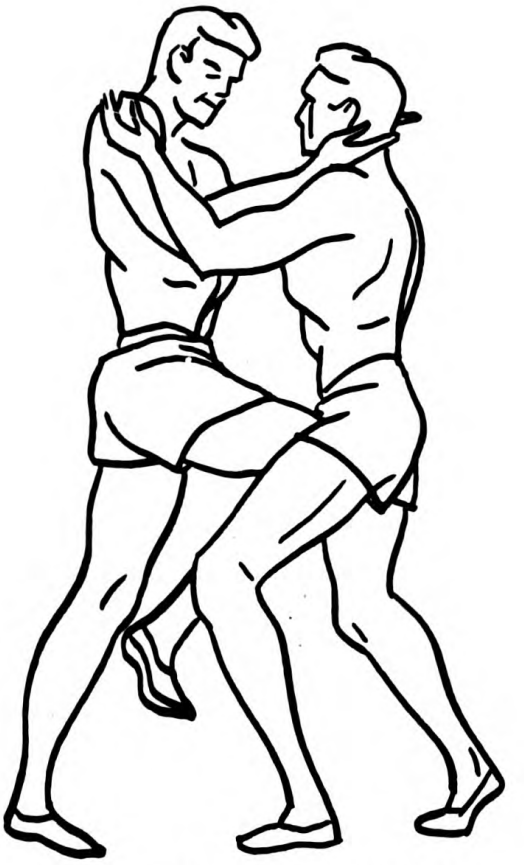


**Figure 122. Defense Against Attack.**

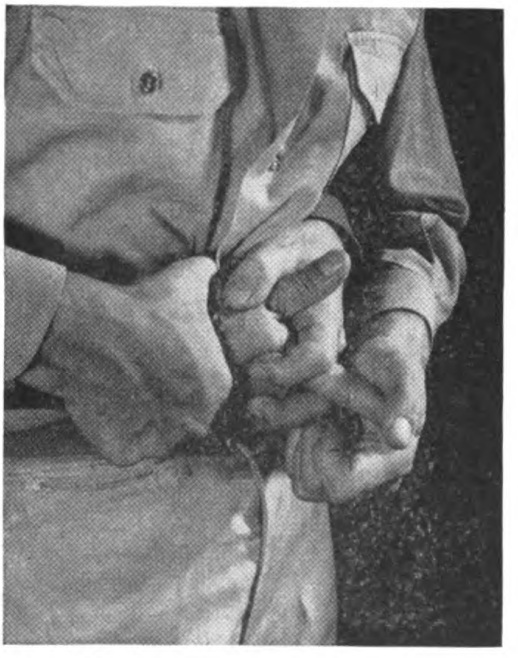


**Figure 123. Body Grasp from the Rear.**

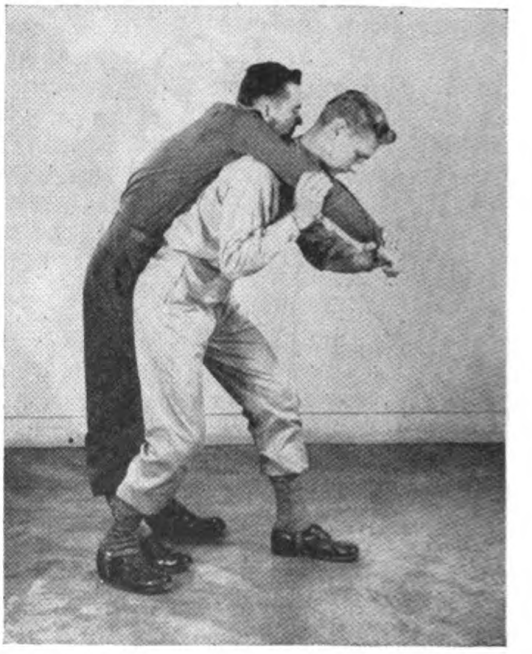


**Figure 124. Start of Flying Mare.**

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on your throat, drive the edge of both hands against the side of *his* throat. At the same time, drive your knee into his groin with all your strength.

c. *Body Grasps From the Rear.* The easiest way to make a person break his grasp around your body is to select one finger and bend it until it breaks. No matter how strong he is, he will not be able to stop you from bending one finger.

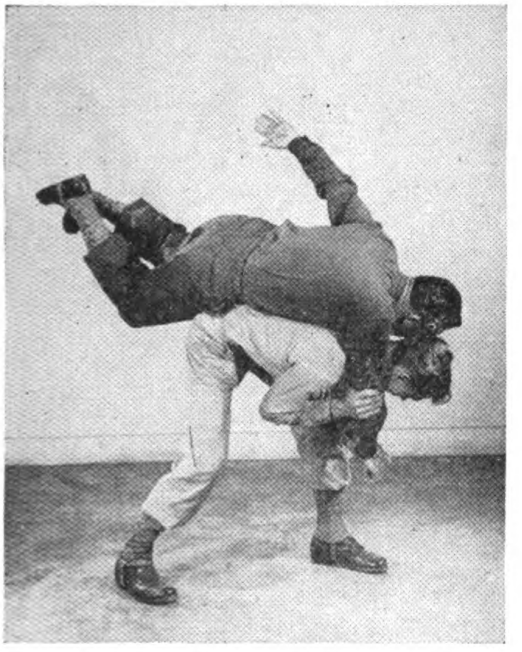


**Figure 125. Flying Mare.**

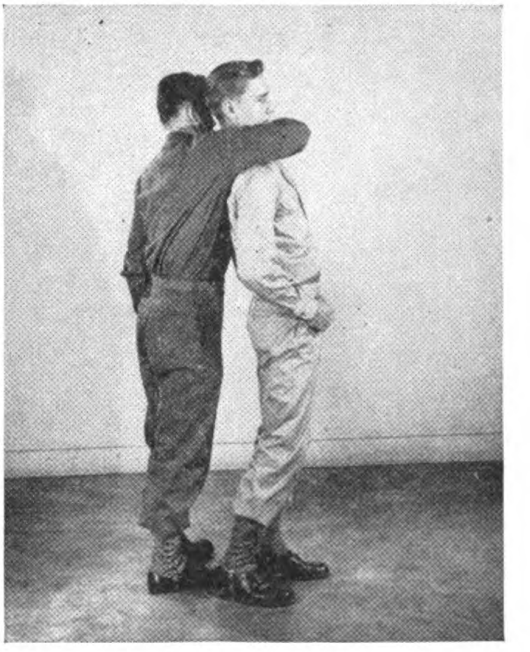


**Figure 126. Strangle Hold from the Rear.**



**Figure 127. Breaking Strangle Hold from the Rear.**

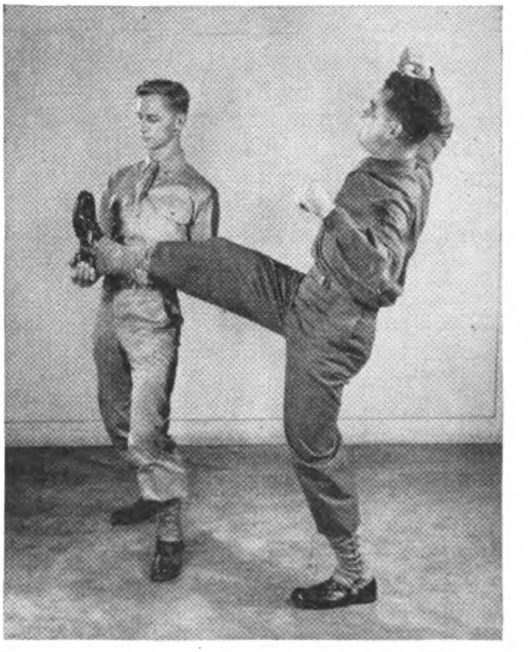


**Figure 128. Defense Against Kicks.**

See figure 123. After the assailant breaks his grasp he is usually very susceptible to the 'flying mare' or a throw over your shoulder. In making this throw it is better to drop to one knee (on the side that you intend to throw him) especially if he is bigger and heavier than you are. (See figures 124 and 125.)

d. *Strangle Hold From the Rear.* In case your opponent attempts to strangle

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you from the rear by using his arm around your throat, there is a very easy way to free yourself and throw your assailant. First tuck your chin in the crook of his elbow to prevent him from choking you and reach up above his elbow with both of your hands. Bend forward at the waist and throw him over your shoulder, making sure that you drop to the knee on the side toward which you intend to throw him. (Figures 126 and 127 show the first two steps of this defense.)

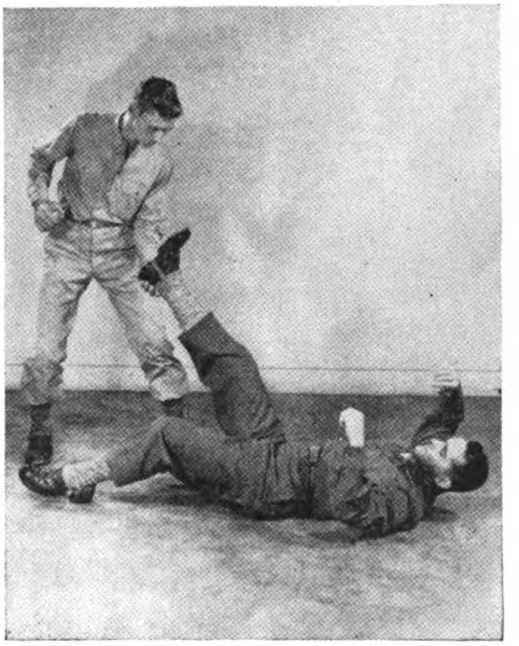


**Figure 129. Defense Against Kicks.**

e. *Defense Against Kicks.* The defense against a man kicking at you is very easy, providing you move quickly. If you are quick enough you may stop the kick by straightening your left leg, if he is kicking with his right, and allowing his shin to come in contact with the edge of your foot. Another way is to move to one side, allow the kick to go past you, and then catch his foot and pull it upward. This will always result in your opponent's falling over backward. This second method of defense is shown in figures 128 and 129.

## DEFENSE AGAINST OPPONENT (ARMED)

While no defense against a person armed with a lethal weapon is sure of success, there should be no need of being entirely helpless. Regardless of what the opponent is armed with, he has a decided advantage over a man that is unarmed. Therefore the defending person must use every way possible to even the difference. Most of the methods shown here are common to any occasion and although every possible method of disarming an assailant of a weapon can not be shown, many variations can be worked out to suit yourself.

a. *Defense Against Overhand Knife Attack.* This is the method that the novice usually employs when he is using a knife as a fighting weapon. It is the least effective of all methods of holding a knife because it limits the user to only one way of using the weapon. The blow is most easily parried by catching the other person's arm before it can start its downward stroke. In order to do this, you must move in fast as the opponent draws back his arm for that downward stroke. The best way to block any overhead blow is to cross your hands at the wrist, right over left, and catch the other person's arm in the space between your two hands and wrists. Regrasp his arm with your right hand, thumb down, pass your left arm in back of his and grasp your own righ wrist. From here extreme leverage can be applied, forcing his arm backward and forcing him to drop the knife. If enough pressure is applied it is very easy to break the arm. Figure 131 shows the intermediate stage of this defense.

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b. *Defense Against Underhand Knife Attack.* Some assailants, although actually ovices, will use an underhand method of holding the knife. While their methods re atill fairly limited, the underhand stab is somewhat harder to block without etting cut. Turn your body to one side so that most of your body is out of the ray and parry the thrust to the right with your left hand, making sure that you

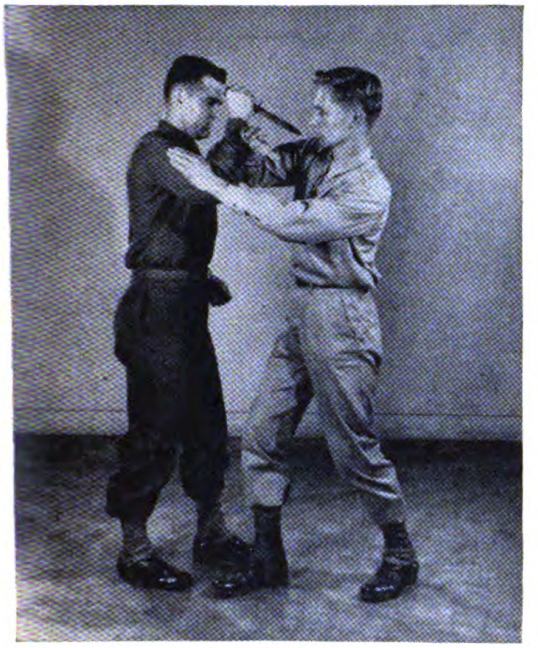


**Figure 130. Defense Against Overhand Knife Attack.**



**Figure 131. Defense Against Overhand Knife Attack, Final Step.**



**Figure 132. Defense Against Underhand Knife Attack.**

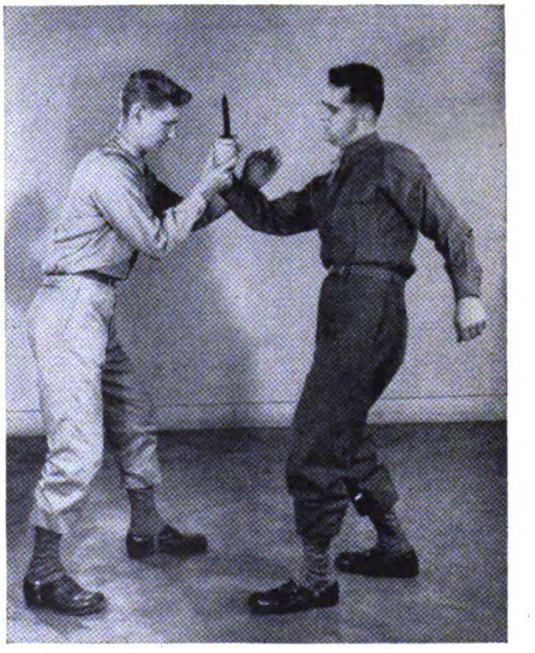


**Figure 133. Defense Against Underhand Knife Attack, Intermediate Step.**

do not grasp the blade and cut your hand. Grasp his knife hand with your right hand so that your thumb is along the back of his hand. Now reinforce your right hand with your left, placing your left thumb beside your right. Twist to your left and bend his wrist to the left and back. This will cause him to drop

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the knife and suffer a broken or dislocated wrist. Figures 132, 133 and 134 show the progressive steps of this movement.

c. *Other Attacks With a Knife.* While there are many other methods by which an opponent can hold or attack you with a knife, the principal of defense remains the same. The first thing is to see that your body is out of the way of the thrust and then pary or block the knife hand. After the initial parry or block any of the aforementioned methods of rendering an opponent helpless can be used. The most common employed are the 'wrist throw' as shown in the under-

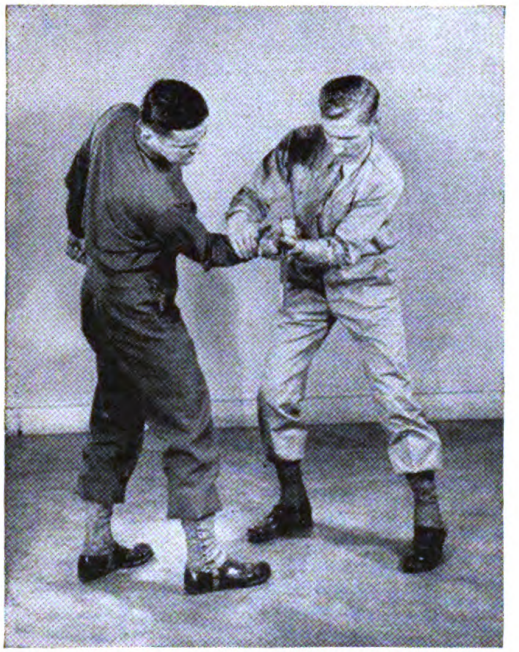


**Figure 134. Defense Against Underhand Knife Attack, Final Step.**



**Figure 135. Defense Against Opponent Armed with a Pistol (1).**



**Figure 136. Defense Against Opponent Armed with a Pistol (2).**



**Figure 137. Defense Against Opponent Armed with a Pistol (3).**

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hand attack, the 'flying mare' as shown in figure 124 and 125. Almost always follow up these defenses with a knee or foot to the groin.

d. *Defense Against Opponent Armed With a Pistol or Revolver.* Gun in front: Raise your hands in a token of surrender making sure that you do not raise them above shoulder height. Pivot at the waist, striking the weapon hand with your left forearm and pushing the weapon out of line with your body. Even though your opponent is ready and the hammer of his gun is cocked he can not pull the trigger fast enough to shoot you. This can easily be seen after trying it a few times with an empty gun. After pushing the gun to the right, grasp his gun with your left hand and, by holding his right wrist with your left hand, force the gun upward and toward him. It is very easy to tear the weapon from his grasp. If he tries to hold on to the gun or has his trigger finger too far through the trigger guard, he will suffer a broken finger. Figures 135, 136, and 137 show the steps of this method.



**Fig. 138. Defense Against Opponent Armed with Pistol: Gun in Back (1).**



**Figure 139. Defense Against Opponent Armed with Pistol: Gun in Back (2).**

e. *Defense Against Opponent Armed With Pistol or Revolver.* Gun in back: Raise your hands, if possible, no higher than shoulder high. Make sure you know what hand your opponent is holding the gun in. This is important because it make a lot of difference when you pivot to sweep his gun arm aside. If the man holds the gun in his left hand, as shown in figure 138, you will pivot to the left, bringing your left arm down so that your left forearm strikes his gun hand. Make sure that you pivot at the waist so that your body is out of the line of fire. Regrasp his weapon with your left hand and grasp his left arm at the elbow with your right hand. By pulling the right elbow toward you and twisting the gun upward and back the weapon can very easily be twisted from his grasp. At the same time drive your left knee into his groin.

All other ways that an opponent can hold you up with a pistol or revolver are just variations of these two methods. The main thing is to see that the body is pivoted out of the line of fire and that the weapon is grasped as soon as possible.

In case the opponent holds the pistol by his side and away from you extreme care must be taken to see that your opponent is off guard before you make any move. Generally the best thing to do in this case is to say something or do something so that your assailant relaxes for a moment and then side step quickly and strike his shoulder sharply, causing the gun arm to be pushed away from you.

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## CONCLUSION

The most important thing in unarmed defense is the learning of the principals upon which the system is based. As has been said before, the learning of a bunch of 'tricks' is of no value to the student because he not only does not understand the principal behind them and thus does not know how to cope with some unexpected movement, but the 'tricks' are easily forgotten unless practiced constantly. Once the principals of unarmed defense are thoroughly learned the student can constantly work out variations to suit himself or the needs of the situation at hand.

We will break these basic principals up into four (4) groups:

### GROUP I.

*Balance.* Any time a man is off balance he leaves himself open to assault by an opponent who is quick enough to realize it. If an opponent can be pulled forward, sideward, or backward he is unable to defend himself until he regains his balance. No matter what position an opponent assumes, he is always off balance in some direction. For example, if your opponent takes a step forward he is somewhat off balance in that direction. If you apply pressure of some sort in that direction he will be thrown entirely off balance.

### GROUP II.

*The Use of Internal Oblique Muscles.* This is one thing that most beginners fail to see. These muscles have been named 'Shita-hara' by the Japanese. The internal oblique muscles are located in the center of the body in the lower abdomen, between the hip bones. The power for every defense must come or be centered in these muscles.

### GROUP III.

*Ability to Use Your Opponents Momentum or Strength.* You should always assume that your opponent is stronger than you are and never attempt to close with him directly. You should use his own power and momentum to carry him on his way; you just direct the movement.

### GROUP IV.

*Attack His Weakest Spot.* You should attack your opponents weakest spot with the greatest amount of power that you can concentrate on that point.

## RIFLE MARKSMANSHIP

No distinction will be made between the three different rifles now is use by our Army for training or combat work. The principles behind markmanship instruction are much the same for any of the three rifles and the patterns to be followed in their instruction are almost identical.

There will be no mention made herein of the various models or modifications of the rifles in use, or anything dealing with the technical nature regarding these rifles. Any information on field stripping, nomenclature, stoppages, etc., will be found in the chapter dealing with small arms. (Chapter one, Volume two.)

Normally, 60 hours should be devoted to the instruction of personnel in marksmanship principles and actual firing on the range. However, if this much time is not available it will be found necessary and permissable to cut down on the time spent on various parts of the instruction.

If possible, the coach and pupil method should be used to instruct the troops. By using this method, the instructor will have more time for instruction of the group as a whole, rather than giving individual instruction to some students and thereby not having time to instruct others. The coach is actually another instructor or an assistant. The coach can and will see errors made by the student that the instructor will not be able to see. Any cadre present can be used as assistant instructors.

## SIGHTING AND AIMING

First, as in any marksmanship instruction, sighting and aiming exercises will be taken up. This is one of the three important parts of rifle shooting; the other two are trigger squeeze and positions. There are numerous other points to cover, but these three are the most important parts of accurate rifle shooting.

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Without the correct sight picture, all the smooth easy trigger squeeze in the world would not make the student a good shot. There is only one correct sight picture. This is known as the 'dead-six o'clock hold'; that is, the front sight is centered in the rear sight so that an equal amount of space shows to either side of the front sight as it is seen through the rear sight, the top of the front sight cuts the peep (circle) in half as a radius drawn horizontally through a circle

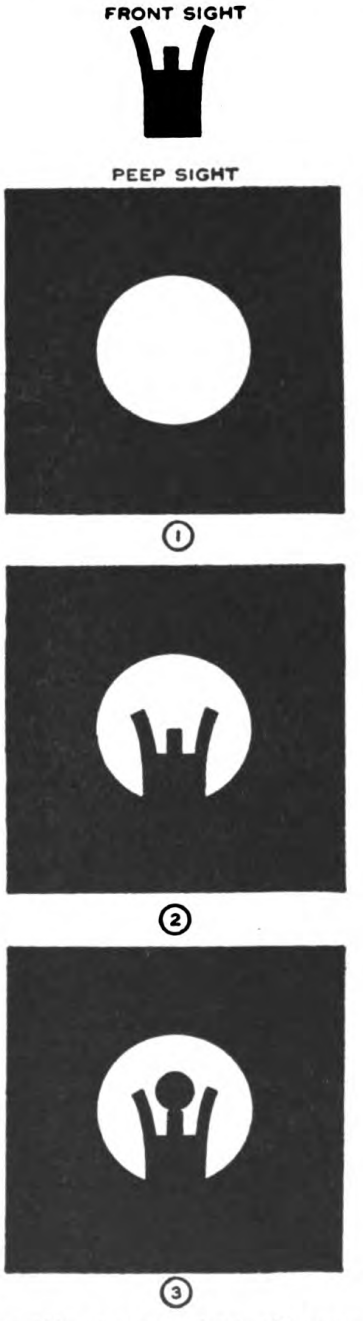



**Figure 140. Correct Sight Alinement.**

would cut the circle in half, and the bull's-eye rests on top of the front sight as a tennis ball would rest on a thin post. The top of the front sight and the bottom of the bull's-eye are in direct contact; there is no overlap and no space between them. Any sight picture other than the one described here is wrong; *all* wrong. Whenever a shooter allows 'a little white space to show,' or 'takes a little black' he will surely be poor. Each shot will bring a slight variation in the sight picture. This variation will cause the student to miss the center of the bull. If it were

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possible to always take the same amount of white space or black for each and every shot accurate shooting could be attained, but as this is not possible, there will always be a slight variation and this variation will bring poor results.

Sighting and aiming exercises are very boring at their best; however, we cannot teach the student to shoot without first teaching the correct sight picture. Teach him over and over again until he sees the correct sight picture in his sleep. Taking the sight picture should be subconscious action; it should just 'come natural.' The regular 'GI' sighting bar is one of the best devices for teaching sight picture. If they are not available they may be easily made. Make full use of them.

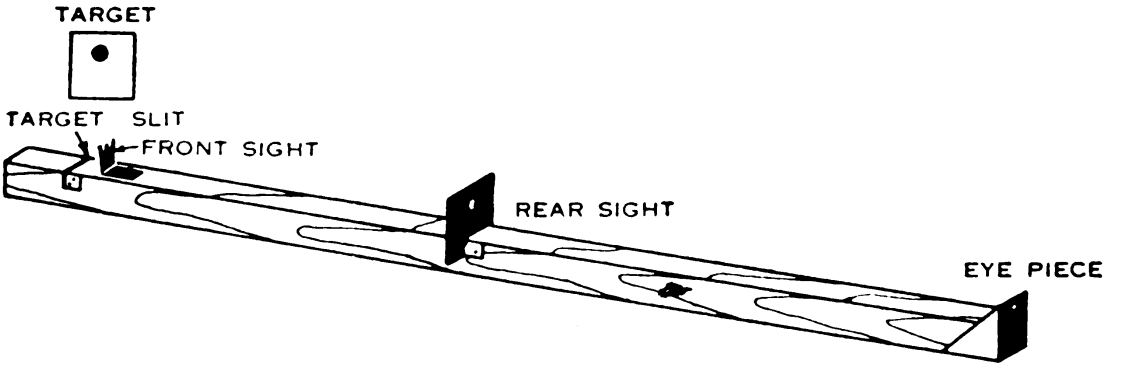



**Figure 141. Sighting Bar.**

Triangulation is a valuable part of teaching the student how important the correct sight picture is in good rifle shooting. Each student should be required to make at least five triangles—the longer the range, the better. At fifty feet the size of the triangle should not be larger than that which can be covered by the unsharpened end of a pencil. At fifty yards it should not exceed the size of a fifty-cent piece.

These triangles usually fall into one of the following classifications. If the triangle is very tall, with a narrow base (sometimes no base at all but all three dots in a straight line), the amount of front sight shown in the peep is not the same each time. The front sight is not cutting the peep in half. Either the front sight is too far up into the peep or not enough of it is showing, probably a little of each. If the triangle is very wide, the amount of space to either side of the front sight as it is seen in the rear sight is not the same for each 'shot.' Explain to each student the reason why his triangle is not small and you explain to him the importance of taking the correct sight picture.

## SLING ADJUSTMENT

After the Sighting and Aiming Exercises have been thoroughly covered, take up the adjustments of the rifle sling. The loop sling is usually used in prone, sitting, kneeling, and squatting positions. This sling will be found to be the steadiest, but it will be of little use in the combat zone except when the soldier has plenty of time to get into it. The hasty sling, as used in the standing position will, probably be used more in combat—if the sling is used at all. The sling is of great importance when firing must be done at long ranges and it will be found that a properly adjusted sling will improve the shooter's marksmanship a great deal.

The sling adjustments should be demonstrated very slowly by the instructor or one of his students. Do this by the numbers, and have the class follow each step to the letter. Corrections are easy to make at this point but if the student is allowed to learn incorrectly, it will be found to be extremely difficult to undo what he has learned and teach the correct method. The instructor should demonstrate to the student the reason for the use of the sling. Show the unsteadiness present when the sling is not used, and then show how the sling aids the shooter.

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Loosen the lower loop.



Insert the left arm through upper loop from right to left, so that the upper loop is near the shoulder and well above the biceps muscle.



Pull the keepers and hook case close against the arm to keep the upper loop in place.



Move the left hand over the top of the sling and grasp the rifle near the stock ferrule swivel so as to cause the sling to lie smoothly along the hand and wrist. The lower loop, not used in this adjustment, should be so loose as to prevent any pull upon it. Neither end will be removed from either swivel.

**Figure 142. Loop Adjustment of the Sling.**

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## POSITIONS

It is not necessary here to relate the methods of getting into the various firing positions. There are, however a few points that should be dealt with—'tricks of the trade.'

The secret of a good position is to *always* have the left arm *directly* under the



Front view.



Side view.



Side view.

M1 Rifle.

**Figure 143. Prone Position.**

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fle. For example; in the prone position, with the left arm *directly* under the iece, the weapon will have the tendency to drop back to the same position after ecoil has ceased. For the right-handed shooter, the weapon will move up and to ne right. If the left arm is *not* under the weapon, the rifle will return to a position o that the sights fall to the right of the target. However, with the lower arm in a ertical plane under the rifle, the sights will return to a point very close to the bull. his will save a great deal of time, both in range rapid fire and in actual combat ring.

If the left arm is allowed to be in a position so that the elbow joint is not directly elow the center of the bore, the muscles of the arm are supporting the weapon.

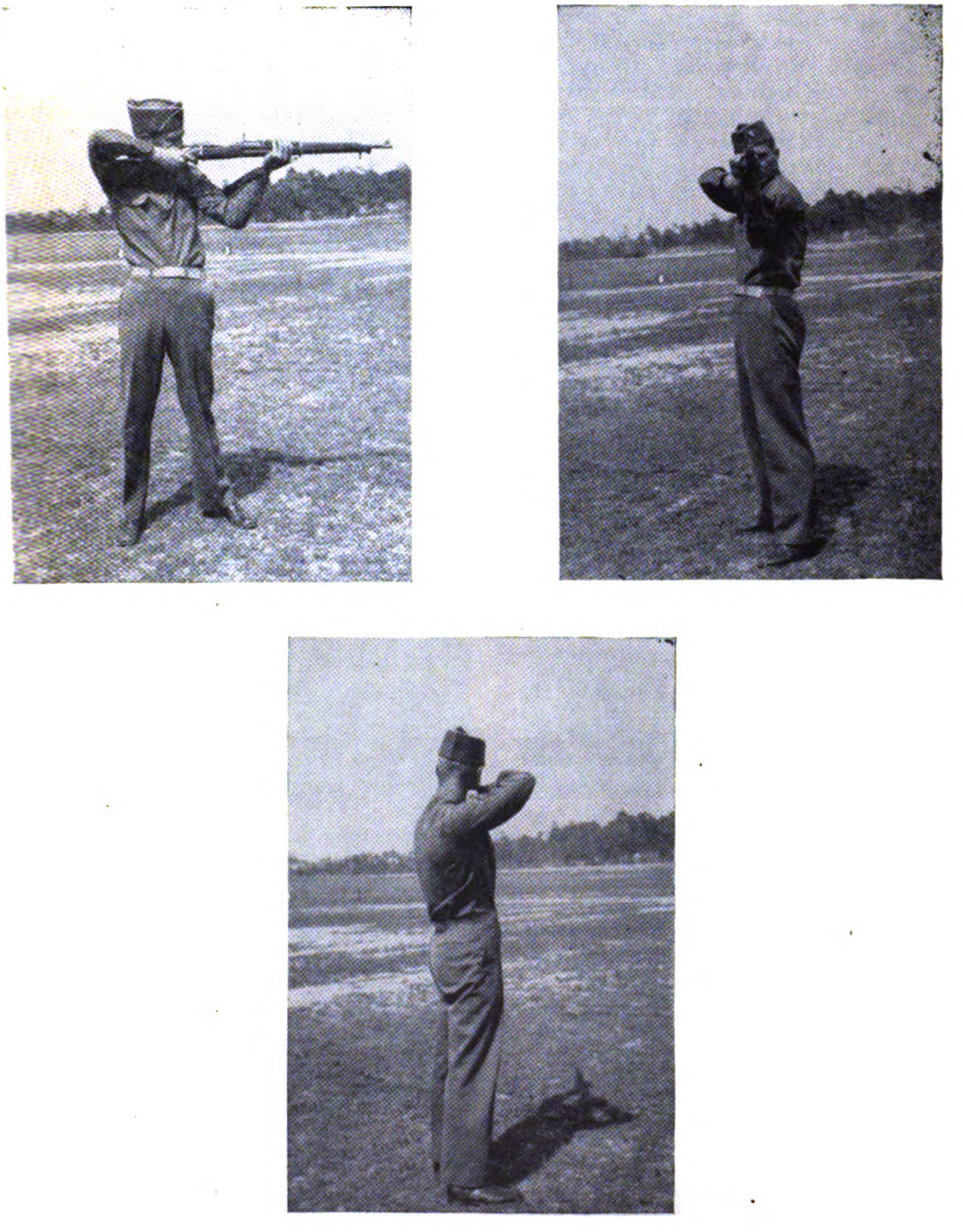


**Figure 144. Standing Position.**

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With the elbow directly under the piece, the *bone* of the lower arm supports the weapon, not the muscle. Muscles get tired, bones do not.

Another trick in obtaining a good firing position is to get the body as close to the ground as possible. In 'prone', the more body on the ground, the steadier the position. In 'sitting,' the closer the upper body is to the ground, the steadier the position. It will apply in all positions except standing. Hug the ground and fire a better score.

Here is another trick: Get into the prone position with the loop sling applied. After the body has been comfortably settled on the ground, look through the sights. If they point to one side of the target, move the *entire body* and *not* just the rifle. Move the body by pivoting around the left elbow but keep the left elbow in place. Move the entire body about the left elbow until the sights of the rifle fall on a vertical line drawn through the center of the bull. If they are found to be either too high or too low, again do not move the left elbow or the body. Instead, allow the *right* elbow to slide *away* from the body. Watch the muzzle and the sights move upward. If the sights are above the bull, move the right elbow closer to the body.

In other words, by pivoting the body around the left elbow, and by moving the right elbow either towards the body or away from the body the sights of the rifle can be brought to rest directly below the bull. It will be found that by trying this often enough, the sights of the rifle can be brought to bear on the bull so that they remain there when the entire body is *completely relaxed.* This is the correct prone position. This procedure should be followed for each and every shot in slow fire, and the first shot of rapid fire; the remainder of the shots in rapid fire will be easier to make if the correct position is obtained for the first shot because the weapon will automatically return the sights to the bull after recoiling, as explained before. In other words, if enough time is taken, every shot in prone shooting should be a bull.

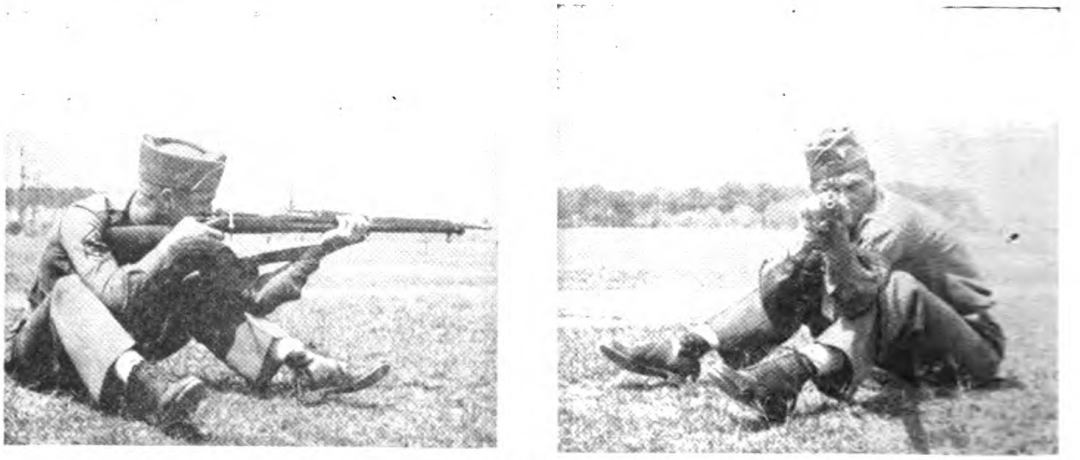


**Figure 145. Sitting Position.**

In the sitting position, the same rule can be applied. After the position has been obtained, look through the sights and see where they fall in relation to the bull. If they are off to one side, move the entire body, pivoting on the buttocks. When the sights have been brought to fall upon the vertical line drawn through the center of the bull, but are too high or too low, move the left leg towards the body to raise the muzzle, or away from the body to lower the muzzle. When both of these things have been done, the sights should rest at the six o'clock position when the body is relaxed. Now is the time to think about squeezing off a shot. Never fire until your position is absolutely correct. Never force the sights onto the bull by moving the arms; *always move the body.*

In the kneeling position, the rule can be applied again. Move the body by pivoting on the toe of the right foot and then move the left leg towards the body to raise the sights, or move it away from the body to lower the sights.

In short, all one has to do is to get the correct position, take the correct sight picture, and *SQUEEZE* the trigger. That is about all there is to good rifle shooting. When a shooter has attained the correct prone position, the rifle will fall on the

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target as if held in a vise. Actually, all the shooter has to do is hold his breath, take his sight picture, and squeeze.

There is only one real 'trick' to shooting in the standing position and that is to get your shot off quickly. There should never be more than a five second delay after the sights have been brought onto the bull before the weapon fires. Most inexperienced shooters wait too long after the rifle is brought to the horizontal



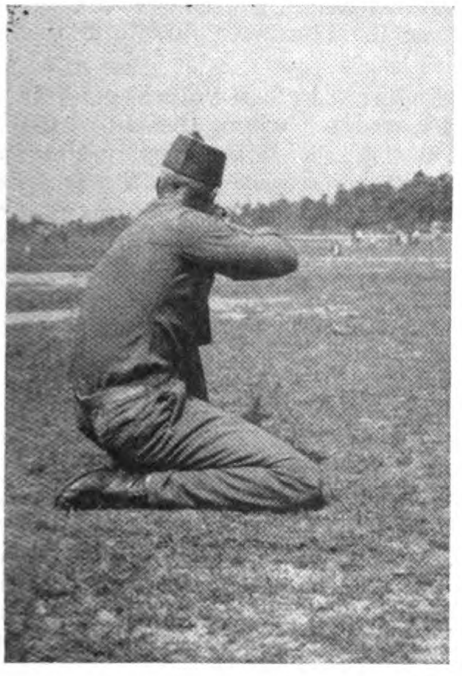




**Figure 146. Kneeling Position.**

position before squeezing off the shot. The tendency to jerk the shot off as soon as the sights cross the bull is a difficult one to overcome. A fast, smooth trigger squeeze *must* be developed. The best off-hand rifle shots in the country seldom fail to get the shot off in more than three seconds, and never more than five seconds

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after the rifle has been brought to the horizontal position. The slack of the trigger should be taken up before the weapon reaches this position, and the sight picture is also taken (lacking the bull'e-eye), as the rifle swings downward. When the rifle reaches the horizontal and the sights are placed on the target, only the squeezing of the trigger remains. Try this. It works.

## TRIGGER SQUEEZE

After all of the positions have been mastered, trigger squeeze exercises can be introduced to the class. Here, the coach and pupil method is very essential. It is up to the coach to see that the shooter squeezes the trigger, does not flinch, holds his breath, and has the correct position. The coach can see to all of these things whereas the instructor can not. The coach should; lie right beside the shooter for prone practice, sit just in front of the shooter (facing him), for sitting position practice, kneel in front and to one side of him for kneeling position practice, and stand beside him for practice in the off-hand position. It is up to the coach to watch the student carefully, to note all mistakes and correct them as they occur. It is of particular importance that the coach and pupil system be used when the group is firing on the range. Coaches should be on the firing line during the firing of the course for record scores, and assume the same position as the man firing.

Proper trigger control is by far the most important part of firing any hand or shoulder weapon. Without it, the shooter will never be able to fire accurately. Most of the trouble that the instructor will find with his students will be in their tendency to flinch when firing the rifle. For some reason, the Cal .30 rifles seem to put fright into an inexperienced shooter; they are actually afraid of the recoil of the weapon. When they fire the weapon they close their eyes, and the entire body jerks in an effort to overcome the recoil. Consequently, a 'flincher' can never shoot accurately. This one fault must be corrected at an early stage or both time and ammunition will be wasted. Trigger control is not a point that can be learned overnight; but must be practiced and practiced. Good positions, breath control, correct sight picture, and all the other things that go into correct and accurate shooting of the rifle are of no use whatsoever if the shooter does not have a smooth easy trigger squeeze. It must be remembered that the shooter should *never* know when the weapon will discharge. If the shooter knows when the rifle will fire, he will always flinch in an effort to overcome the recoil. Eliminate flinching at the beginning and a good rifle shot will result.

One of the tricks of having trigger control is being able to 'call your shots.' That is, the shooter should be able to tell the coach or instructor where the shot hit the target. This is quite possible if the shooter does not flinch. If the trigger squeeze was smooth and gradual, the shooter will have had his eyes open when the weapon discharged, and will be able to tell the coach just where the sights were in relation to the bull when the weapon fired. The weapon fired as a *complete surprise* to the shooter, and his eyes were therefore open until his ears *heard* the sound of the shot. By the time that the shooter's ears heard the shot, the bullet had already left the muzzle, and any jerking or flinching would not have any effect on the flight of the bullet. Flinching is one of the hardest of all faults to correct, but there are several methods whereby it may be eliminated.

The use of dummy rounds slipped in with the live rounds will help the flincher to see his error and will make him try to correct it. Load his c'ip with several live rounds and several dummy rounds. When the shooter jerks the trigger on a dummy round, there will be no report and no recoil, and both the shooter and the instructor can actually *see* the shooter flinch. An hour's use of dummy rounds will correct this fault in most flinchers. If, however, it is not a permanent correction, repeat the process until satisfactory results are attained. If there are no dummy rounds available, the coach or instructor can load the weapon himself. The weapon should be held in such a position as to prevent the shooter from seeing the firing chamber. One time a live round can be put directly into the chamber, the next time nothing is put into the chamber; however, the shooter will *think* that there is a live round in the chamber and will flinch just the same. The instructor must *prove* to the shooter, beyond a doubt, that he is flinching. Once this has been done, the shooter will make an effort to correct this error and will find that his shooting improves noticeably.

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## RAPID FIRE PROCEDURE

Now that position, trigger squeeze, and trigger control have been mastered, rapid fire procedure can be taken up. With either of the bolt action rifles, rapid fire procedure takes in bolt operation. It is important that fast, smooth bolt operation be mastered in order to save time. A maximum amount of time must be allowed for sighting, aiming, and trigger squeeze. If the bolt operation is slow, some of this time is taken away from the all-important trigger squeeze. The average soldier should be able to operate the bolt of the '03 rifle approximately thirty (30) times in one minute; the '17 about twenty-two (22) times per minute. It should be understood that this exercise does not include squeezing the trigger or aiming at a target. When trigger squeeze is introduced with bolt operation, we have taken up rapid fire procedure. Master the operation of the bolt, introduce trigger squeeze, and then combine the two with sighting and aiming at a target.

In using the M1 rifle, a wooden block should be placed in the M1 clip so that the follower is depressed and the bolt will not lock back in the open position. It is necessary for the man practicing to have a helper, or coach, to operate the bolt for him. The coach should either lie, sit, or kneel beside the man firing and operate the bolt so as to cock the weapon after each shot. This is done by striking the bolt handle a sharp blow with the base of the palm. This cocks the weapon and simulates recoil.

After bolt operation, trigger squeeze, and rapid fire procedure have been mastered, another phase of rapid fire procedure must be taken up; that of dropping into position with a minimum loss of time. When on the range, the shooter gets into the firing position stipulated and adjusts himself as explained previously. He then rises to his feet. When the targets appear, he will drop into position and start firing. It is important that there is a minimum loss of time here, so that a maximum amount of time can be devoted to aiming and squeezing off the shots. This must be practiced over and over again until maximum proficiency is attained.

## COURSES TO BE FIRED

For U. S. Rifle, Caliber .30 M1 ('C' Course) 200 Yards.

| | | | |
|---|---|---|---|
| 4 Rounds | Slow Fire | Sitting | Possible 20 |
| 4 Rounds | Slow Fire | Kneeling | Possible 20 |
| 4 Rounds | Slow Fire | Standing | Possible 20 |
| 9 Rounds | Rapid Fire | *St. to Prone | Possible 45 |
| 9 Rounds | Rapid Fire | *St. to Sit. | Possible 45 |
| 9 Rounds | Rapid Fire | *St. to Kneel | Possible 45 |
| *(Standing) | | TOTAL | Possible 195 |

*EXPERT 172* *SHARPSHOOTER 160* *MARKSMAN 130*

In firing the rapid fire sections of the course, 9 shots will be fired from each position. The weapon is loaded with one (1) loose round in the chamber. After the shooter has dropped into position from the standing position, he fires the 1 round and then reloads with a full clip of eight (8) rounds. For the firing of each 9 shot phase, 51 seconds are allowed. This time should be controlled from the pits and not from the firing line. There is no time limit for slow fire.

In firing the rapid fire phase, alibis and alibi runs are authorized only if the weapon fails to fire due to a defective round or mechanical failure of the weapon itself. Failure of the first round in the clip to load into the firing chamber is *not* a mechanical failure and does not constitute an alibi. It is the responsibility of the shooter to see that the first round goes into the firing chamber.

For U. S. Rifle, Caliber .30 Model 1903 or any of its Modifications, ('C' Course) 200 Yards.

| | | | |
|---|---|---|---|
| 4 Rounds | Slow Fire | Sitting | Possible 20 |
| 4 Rounds | Slow Fire | Kneeling | Possible 20 |
| 4 Rounds | Slow Fire | Standing | Possible 20 |
| 9 Rounds | Rapid Fire | *St. to Kneel | Possible 45 |
| 9 Rounds | Rapid Fire | *St. to Sit. | Possible 45 |
| 9 Rounds | Rapid Fire | *St. to Prone | Possible 45 |
| *(Standing) | | TOTAL | Possible 195 |

*EXPERT 172* *SHARPSHOOTER 160* *MARKSMAN 130*

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In rapid fire sections of the course, the weapon is loaded with four (4) loose rounds. When the shooter has dropped into position from the standing position, he fires the four rounds and then reloads with a full five round clip. The 9 shots will be fired in 68 seconds. Again, this time should be controlled from the pits and not from the firing line. There is no time limit for slow fire. Alibis and alibi runs are the same as with the M1 Rifle.

For the U. S. Rifle, Cal .30, Model 1917, the course to be fired is the same as outlined above for the '03 rifles.

If both a 200 and a 300 yard range are available, the following course will be fired with the Model 1903 or the Model 1917.

| | | | | |
|---|---|---|---|---|
| 6 Rounds | SF | 200 Yds. | Sitting | Possible 30 |
| 6 Rounds | SF | 200 Yds. | Kneeling | Possible 30 |
| 9 Rounds | RF | 200 Yds. | *St. to Sit. | Possible 45 |
| 6 Rounds | SF | 300 Yds. | Prone | Possible 30 |
| 6 Rounds | SF | 300 Yds. | Sitting | Possible 30 |
| 9 Rounds | RF | 300 Yds. | *St. to Pr. | Possible 45 |
| | | | TOTAL | Possible 210 |

*(Standing)

*EXPERT 180* *SHARPSHOOTER 165* *MARKSMAN 140*

In firing the rapid fire sections of the course, the time allowed for each 9 shot phase is again 68 seconds, whether fired from the 200 yard or the 300 yard range. As before, four (4) loose rounds are loaded in the magazine and fired, whereupon a complete 5-round clip is then loaded into the weapon.

It must be remembered that in all cases of firing rapid fire for practice or record the shooter starts from the standing position and drops into the shooting position at the time that the targets appear. Usually the shooter is in his position by the time that the targets reach the top of their upward movement. The first shot should be fired within 4 seconds after the position has been taken up.

In outlining the courses to be fired with all of the weapons covered in this article, the term 'rapid fire' has been used. It is no longer referred to as 'rapid fire' but now has the official designation of 'sustained fire.' It was believed that the old rapid fire time limits forced the shooter to fire too fast for accurate shooting. Formerly, 10 shots were fired in 60 seconds at 200 yards with the '03 and '17. Now only 9 shots are fired in 68 seconds. With the M1 Rifle, under the old procedure, 16 rounds were fired in 60 seconds. Now only 9 rounds are fired in 51 seconds—7 less rounds in 9 less seconds.

## SIGHT ADJUSTMENTS

With either the M1 Rifle or the Model 1903A3 the following sight adjustment rules will apply. These rules *do not* apply to the Model 1917 or the Model 1903 with leaf-type sights. Sight adjustments for the latter two rifles will be covered in a later section.

One click of elevation or depression moves the strike of the bullet one inch for every 100 yards of range. If the range is 200 yards, one click would move the impact of the bullet 2 inches. At 300 yards, one click would move it 3 inches. This applies also to windage. By moving the rear sight one click to the right, the impact of the bullet would move one inch at 100 yards, 2 inches at 200 yards, 3 inches at 300 yards, etc., to the right. (Move the sight in the direction that you wish the point of impact of the bullet to move.)

Example: At 200 yards the impact of the bullet is 8 inches low and 12 inches to the right. Therefore, 4 clicks of elevation would raise the impact 8 inches, and 6 clicks *left* windage would move the impact 12 inches to the left.

Example: At 300 yards the impact of the bullet is 12 inches too high and 15 inches to the left of the center of the bull. Since each click of sight change would move the bullet *3 inches* at *300 yards,* the sight changes would be 4 clicks of depression and 5 clicks right windage.

After sight adjustments have been made, the locking screw on the sights must be tightened to prevent the recoil of the weapon from shaking the sights out of adjustment.

With the Model 1917 or the Model 1903 with leaf-type sights the following sight adjustment rules will apply. (These rules do *not* apply to the Model 1903A3.)

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ELEVATION RULE: Changing the elevation 100 yards on the scale, at any range, will give a change on the target (in inches) equal to the square of the range as expressed in hundreds of yards. If the range is 200 yards, and the sights are now set at 200 yards on the scale, moving the sights to read 300 yards would raise the impact of the bullet 4 inches. At 300 yards this change on the sights would change the impact 9 inches.

Example: Firing on 300 yard range with sights set at 300 yards on the scale. To raise the impact of the bullet 9 inches, move the scale to read 400 yards. If the scale were moved to read 350 yards, the impact of the bullet would be raised 4½ inches.

The windage scale on the leaf-type sights is divided into points. One quarter point of adjustment moves the impact of the bullet 1 inch on the target for each 100 yards of range. Thus, by moving the sights one quarter of a point to the right when firing on the 200 yard range, the impact would move 2 inches to the right. One half point change to the right would move the impact 4 inches (at 200 yards) to the right.

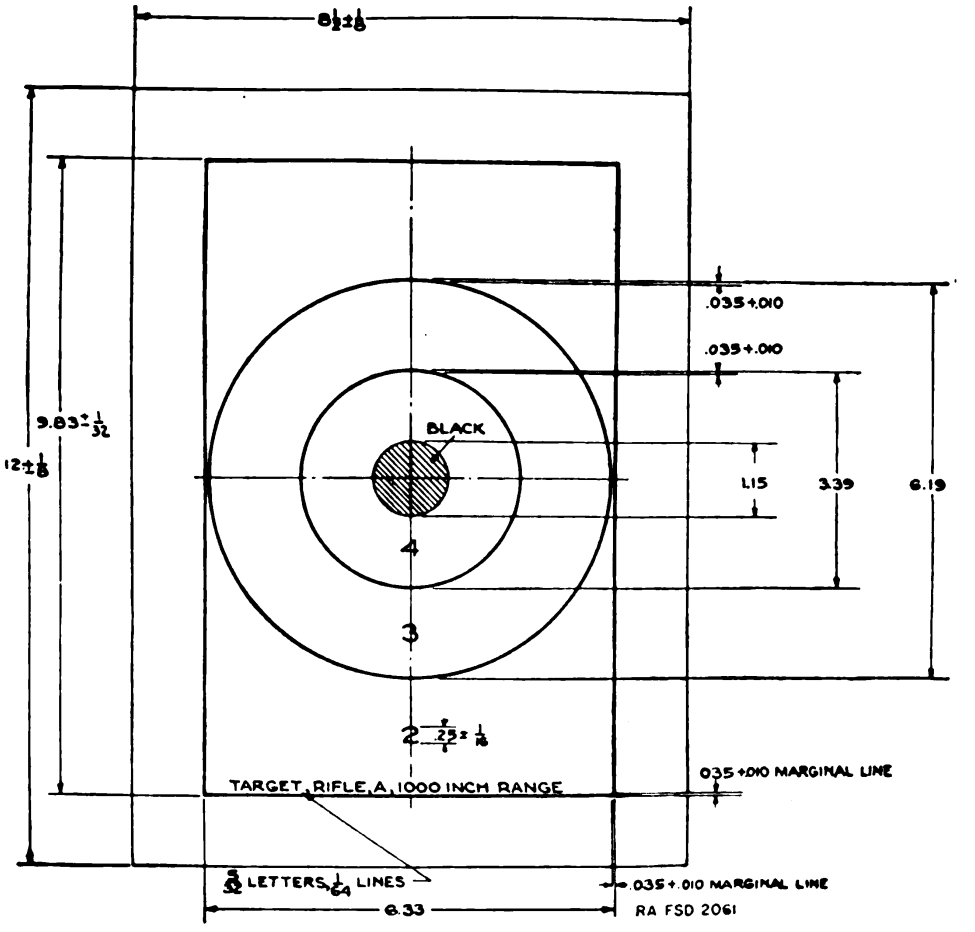



**Figure 147. Target, Rifle, 1000-inch.**

This target is printed with black ink on buff manila target paper, 12 inches high and 8½ inches wide. The targets are required for firing courses A, B, C, and D, on the 1,000-inch range with the caliber 30, M1903, and caliber .30, M1 rifles. They are packed 1,000 in a package, each package wrapped completely and securely in paper, with label suitably printed to describe contents pasted on outside of package.

Example: When firing at 200 yards, the impact of the shot is 8 inches too low and 10 inches to the left of the center of the bull. Assume the sight is set at 200 yards with zero windage. By moving the elevation to read 300 yards the impact would be raised 4 inches. To raise the impact 8 inches, move the sight to read 400 yards. Since one quarter of a point of right windage would move the impact 2 inches to the right at 200 yards, the windage scale would have to be moved *one and one-quarter* points to move the impact to the right *10 inches.*

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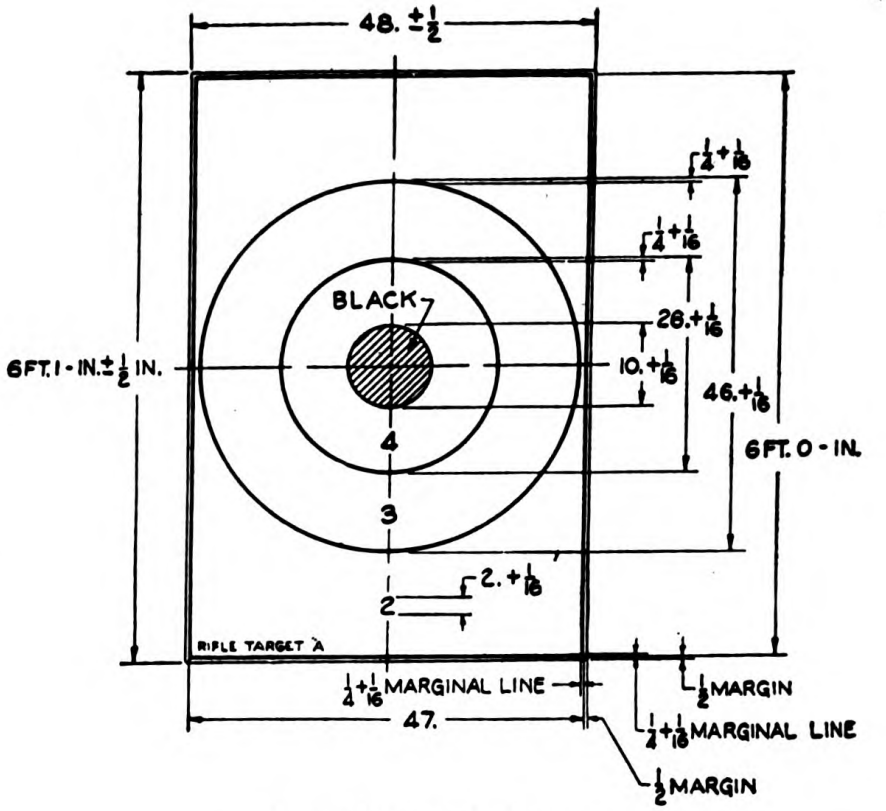
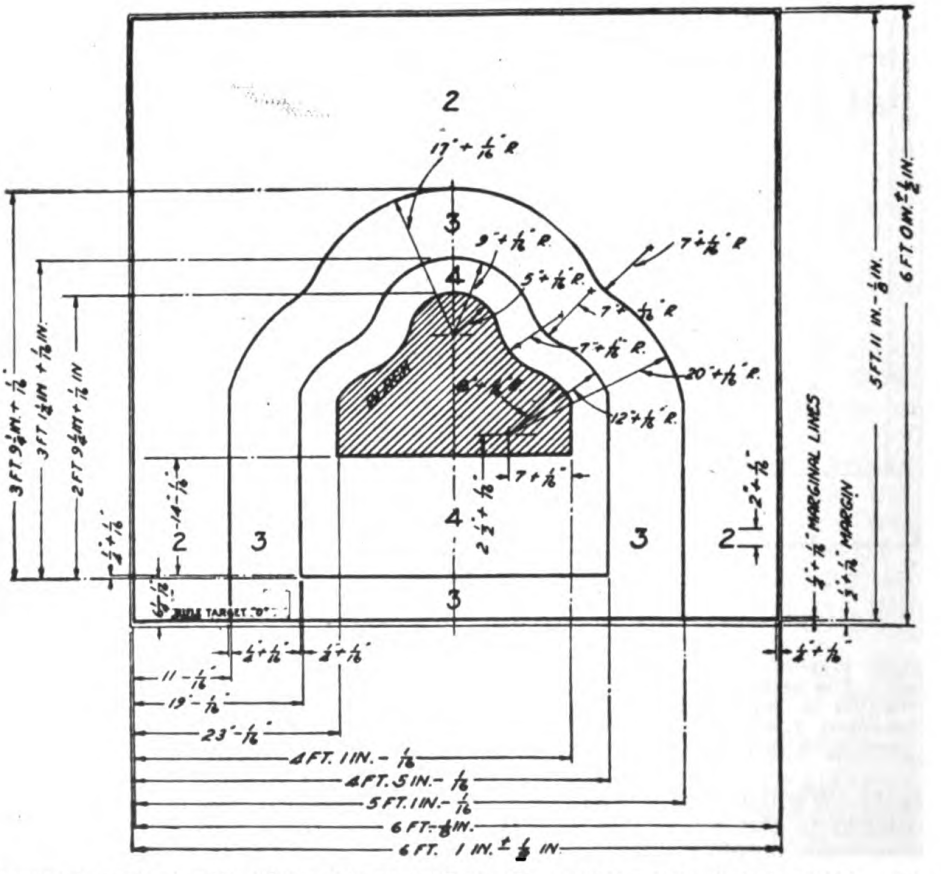



**Figure 148. A Rifle Target.**




This target is printed with black ink on buff manila target paper, 6 feet square. The targets are packed 50 in a roll, each roll wrapped completely and securely in paper, with label suitably printed to describe contents pasted on outside of roll.

**Figure 149. D Rifle Target.**

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It must be remembered in all cases that the sights should never be adjusted until a GROUP of shots has been fired somewhere on the target. Students should not be allowed to make sight adjustments every time that they miss the bull's-eye. In order to properly zero the rifle, at least three shots should fall in a group. Once these three shots have been located, regardless of where they are or how far they are from the center of the bull, the sights should be adjusted. One or two shots are not enough to tell whether or not the rifle is 'sighted in.' Wait until a three-shot group falls somewhere on the target, take the center of this group and make sight adjustments from that point.

The bull's-eye of the 'A' target used for slow fire at 200 or 300 yards is 10 inches in diameter, the four ring is 26 inches in diameter, the three ring is 46 inches in diameter, and the remainder of the 6 foot high 4 foot wide target is the two ring. Thus we see that it is 5 inches from the center of the bull to the edge, 8 inches from the edge of the bull to the outside edge of the 4 ring, and 10 inches from the edge of the four ring to the outside edge of the 3 ring. Knowing this, we can tell the exact distance our three-shot group is from the center of the bull. Knowing the number of *inches* our group is too high or too low, and the number of inches our group is too far to the right or left, we can make accurate sight adjustments. Plot the shots in the score book, find the center of the three-shot group, measure the distance from this center to the center of the bull, and make the sight adjustments. This is the most accurate method of making sight adjustments.

The rifle should be 'sighted in' on the slow fire target ('A' target), and never on the rapid fire target ('D' target). 'Sighting in' should be done in the prone position and with a sand bag rest, if available.

The "A" target is required for the following

(1) Preparatory exercises in rifle marksmanship.
(2) 500-yard slow fire practice, rifle marksmanship.
(3) For known-distance instruction.
(4) 500-600-yard machine rifle marksmanship.
(5) 2.24-inch (6 pounder) tank subcaliber target practice at 500-600 yards..
(6) Sighting target for 2.24-inch (6-pounder) tank gun marksmanship.

## U. S. CARBINE .30 M1 AND M1A1 MARKSMANSHIP

The carbine is truly the weapon of the ordnance soldier. Since the ordnance man is not primarily a combat soldier, and since the weight of heavier weapons would often hinder his work, the carbine fits the bill exactly.

The carbine is a light weight, fast firing, semi-automatic shoulder weapon. The ease with which it can be carried, the speed with which it can be brought into action, and the amount of fire power that can be delivered with this gun make it very close to being on all around weapon.

It was developed as an answer to the fast firing machine pistols of the Axis, and to fill the big gap between the cal .45 pistol and the heavy cal .30 service rifle.

Each weapon is fed by a box magazine with a capacity of fifteen rounds. Due to the size and shape of the clip and the weight of the cartridge, each man can carry large amounts of ammunition.

**Models.** There are two different types of carbines that are now standard issue: the U. S. Carbine cal .30 M1 and M1A1.

*The model M1* is the basic carbine. It has a one-piece wooden stock and a webb sling that it attached to the carbine in front by a swivel and to the butt by means of a slot in the stock. It is held in place by an oiler case which is inserted into the rear end of the stock on the right side.

The model M1A1 is the same as the Model M1 with the exception of the stock. There is a definite pistol grip and a folding skeleton stock extension of metal hinged to the rear end of the wood stock. The sling is attached to the front swivel and to the rear by an eye in the bottom of the pistol grip.

Two types of sights are now in common use. The old type is referred to as the "L" type sight and is adjustable only for ranges of 150 and 300 yards. The new sight is not only adjustable for ranges varying from 100 yards to 300 yards but has a windage knob that enables the user to compensate for windage adjustments.

The field stripping assembly and disassembly is completely covered in the chapter on small arms and will not be dealt with here.

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**Training.** Without proper training the average man does the wrong thing instinctively when firing the carbine: he gives the trigger a sudden pull which causes flinching. However, after careful and correct training the carbine is a very accurate weapon in the hands of using troops.

The training of men in the correct method of firing the carbine is divided into steps that must be taught in proper sequence. The soldier is carefully coached and corrected when he makes mistakes. The following are essentials of good carbine shooting:

Correct sighting and aiming;
Correct positions;
Correct trigger squeeze;
Correct application of sustained fire principles;
Knowledge of proper sight adjustments.

No soldier should be given range practice until he has had the right amount of preparatory training. Every man who is to fire on the range will be put through the entire preparatory course, regardless of whether he has had previous experience or not. No distinction will be made between men who are recruits and men who have had previous range practice or qualification.

All of the noncommissioned officers and other men selected as assistants will be put through the course and will be required to pass a rigid test before they become instructors.

As a part of their training all recruits to be armed with the carbine will have a thorough knowledge of the mechanical aspects of the weapon as well as the fundamentals of carbine firing. Where practicable, men armed with the carbine should be given a preliminary course in rifle markesmanship before commencing carbine training.

**Preparatory Marksmanship Training.** Preparatory marksmanship training is broken down into six steps as follows:

1. Sighting and aiming exercises;
2. Position exercises;
3. Trigger squeeze exercises;
4. Sustained fire exercises;
5. Instruction in the effect of wind, sight changes, and the use of the score book or score card;
6. Examination of men before starting range practice.

Each of these steps should be preceded by a lecture from the instructor and then a demonstration by either the instructor or some qualified assistant. During the demonstration the instructor should point out the important points and the common faults that are usually made and the detrimental result in firing if these faults are not corrected.

The instruction must be thorough, and it must be given individually. Each man must understand every point and must be able to explain each one in his own words. The instructor will carefully supervise the work of the assistants under him and will be quick to point out any mistakes that are being made.

Everything possible must be done to keep up interest. As soon as the work deteriorates into a prefunctory performance of physical exercise, it does more harm than good.

During preparatory exercises the coach and pupil method is used. The men are grouped in pairs and take turns coaching each other. This system enables the men to get a better knowledge of the principles of correct firing.

Each soldier must be impressed with the importance of doing each detail perfectly. For example, there is no such thing as having the sight picture about right; it is either perfect or it is incorrect.

**Sighting and Aiming.** Sighting and aiming exercises are best accomplished by the use of a regular sighting bar. This bar is the same as the standard bar used in all rifle marksmanship. For more detailed description see Par. 50, FM 23-7.

In all preparatory exercises involving sighting and aiming and all range firing the sights should be blackened. There are several good methods by which sights can be blackened. The best method is by using a carbide lamp; it insures a good, smooth, black surface.

**Correct Positions and Breathing.** Holding the breath. If a man breathes while

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he is in the act of actually shooting the carbine, the motions caused by breathing are transmitted to the carbine and exact aim can not be held.

To hold the breath properly, a normal breath should be taken and a little of




**Figure 150.**

the breath let out. The breath is held by closing the throat so that the diaphragm is relaxed. The firer should breath after each shot but not while firing the weapon.

*Positions:* These are general rules that are common to all the firing positions. For a more detailed explanation see Par. 51, [illegible]

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The five positions (see figure 150) from which the carbine is fired are the same as those used with the cal .30 rifle; namely, the prone, sitting, squatting, kneeling and standing positions. Methods of going into positions are the same as with the cal .30 rifle, as shown in figures 151 and 152.

The exact details for the positions of each individual depends upon the build of the person. Some people can not assume some of the positions as readily as others and every effort should be made to see that each man gets the best possible position.

In all positions the pupil should strive for complete relaxation. A man can not fire a weapon correctly if his muscles are tense or tired; therefore it is important that the different positions be practiced constantly.

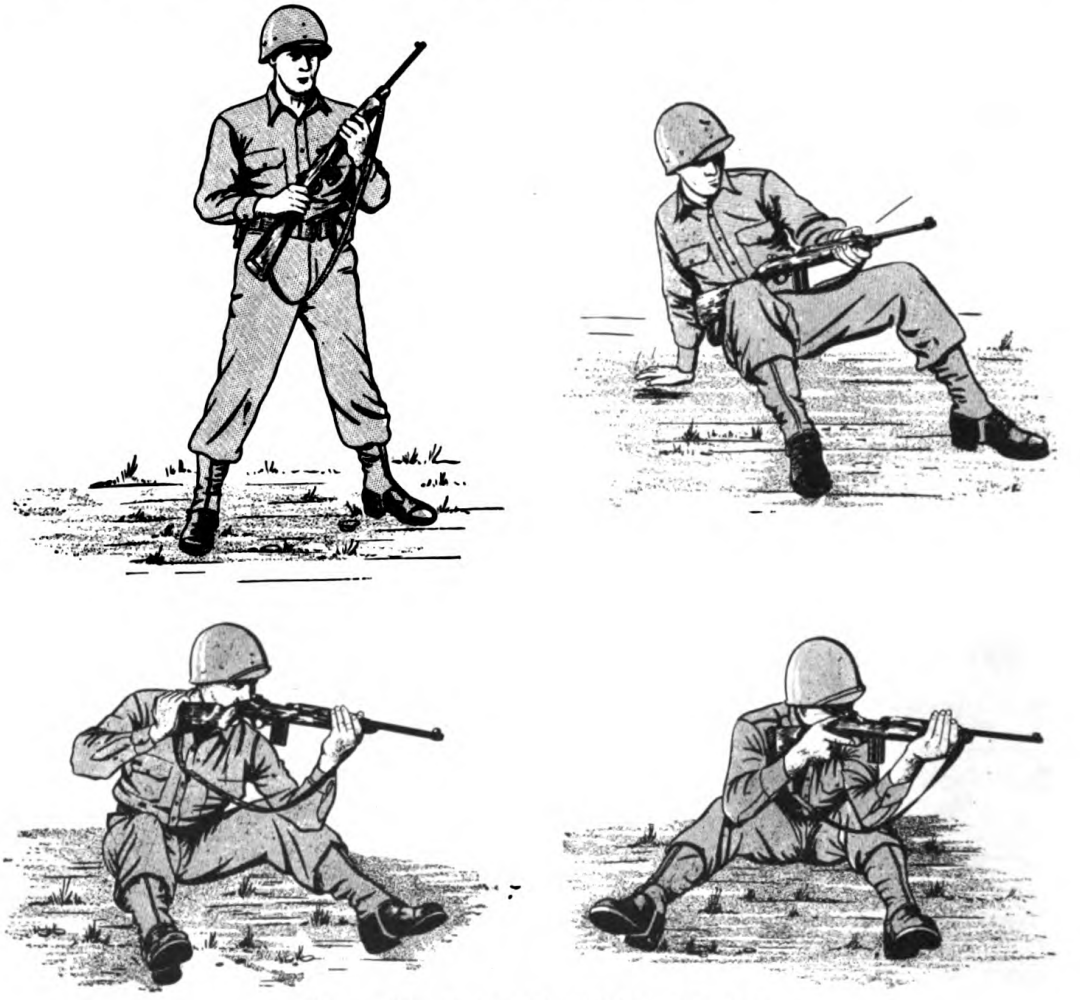


**Figure 151. Going Into Sitting Position.**

The same positions should be taught for slow and sustained fire. Slow fire is used to lay the foundation for sustained fire.

**Trigger Squeeze.** The most important step in the firing of any hand or shoulder weapon is the squeezing of the trigger. Too much importance can not be put on the fact that the firer must squeeze and not pull or jerk the trigger. If all other steps in firing are done correctly and the trigger is jerked, causing flinching, the result will be a poor shot. The trigger must be squeezed so steadily that the firer does not actually know when the carbine is going off. If this is done while he is concentrating on a good sight picture, the resulting shot will be good.

The difference between good marksmen and poor marksmen is measured by their ability to squeeze the trigger properly. Any man with fair eyesight and strength can align the sights and hold the weapon on the target. When he has developed sufficient will power to forget that there will be an explosion and a shock, and

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squeezes the trigger with a steady increase in pressure until the carbine is fired, he has become a good shot.

Every man should be able to 'call' each shot, spotting accurately where the bullet hits the target. This is done by noting carefully the last picture of the target seen when the explosion took place. If the trigger is squeezed, the shot will go where it was aimed. If the trigger is jerked at the last second, the shot will be wild and the shooter will have no idea where the bullet has gone.



**Figure 152. Assuming Prone Position.**

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**Sustained Fire.** Generally, all points learned in slow fire are applied in sustained fire. It is important that the men understand that the trigger squeeze is the same in sustained fire as it is in slow fire. Accuracy must never be sacrificed for speed. Sustained fire should be considered as an uninterrupted sequence of slow fire shots delivered without unnecessary loss of time.

The whole secret of sustained fire is the ability to get into position quickly and to reload without fumbling, hold the correct sight picture quickly and squeeze off the shots. See figures 151 and 152.

Sustained fire exercises can be conducted easily by the coach and pupil method. The coach takes a place where he can see the trigger finger of the pupil and in such a position that he can work the bolt.



**Figure 153. Coach Strikes Operating Slide.**

The instructor uses a watch to time the exercises and gives the command 'Bolt' in a regular cadence of timing at which time the coach strikes the operating rod handle, cocking the piece and the pupil then squeezes off the shot. (Fig 153) A target should be set up so the pupil can sight each shot carefully. The instructor repeats the command or signal at 6 second intervals for one minute, with approximately one minute between exercises. These exercises should be practiced in each of the positions.

**Effect of Wind, Sight Changes, Use of the Score Card.** *Wind.* In the firing of the carbine at ranges of 300 yards or less, the effect of the weather (except the wind) can be disregarded. The wind has a considerable effect upon the flight of the bullet. If the carbine is equipped with the new type of sight, necessary adjustment must be made to compensate for the effect of the wind. Thus, if a wind were blowing from the left it would be necessary to move the rear sight to the left. If the carbine is equipped with the 'L' type rear sight, it will be necessary to allow for the effect of the wind or use so-called 'Kentucky Windage,' aiming an estimated distance to one side of the target to counteract the effect of the wind.

*Sight Changes.* Each man must zero in his own carbine. The zero of any carbine will differ with each individual; thus, if a carbine is zeroed in by one man it does not mean that it will be zeroed correctly for each and every man that uses the same carbine.

In shooting up hill or down hill less elevation is required than when shooting on level ground. The steeper the hill the less elevation is required, no matter how distant the target. Slight slopes that may be found on target ranges have no appreciable effect upon the elevation used and require no correction.

*Use of Score Cards or Books.* The rifle score book (W.D.A.G.O. Form No. 82) may be adopted for use with the carbine by making minor changes in the headings in the field. This is particularly true of the carbine with the adjustable sight. The men firing must be cautioned against using the windage and elevation information contained in the score book that applies to the rifle. Illustrative problems should be solved by the pupil before going on the range for firing. The use of the score card or book is important because the plotting of the shots and recording such data as wind, light, and weather helps the firer learn the zero of his carbine. The score card or book will be kept personally by the man doing the firing. The coach should assist him when necessary to decide what to write down, but the coach should neither plot the shots nor enter any data.

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*Qualification Courses.* Information as to who will be authorized to fire the carbine will be found in AR 775-10.

*Use of the 1,000 inch range.* Although the 1,000 inch range is not included as a qualification course, it is invaluable during instruction practice. When time or personnel is limited, the 1,000 inch range can be used for the initial phase of instruction practice. On posts where a large range is not available the 1,000 inch range can be used entirely.

At the 1,000 inch range, the soldier becomes used to the noise and recoil of the carbine and he perfects his trigger squeeze and position. In short, the pupil can learn all the basic elements of marksmanship by firing at the 1,000 inch range.

The following is the 1,000 inch course as prescribed in FM 23-7:

TABLEE I. SLOW FIRE

| Range Inches | Time | Shots | Target | Position | Remarks |
|---|---|---|---|---|---|
| 1,000 | No limit | 8 | Rifle A 1,000 in. | Prone | w/o sling |
| 1,000 | " | 8 | " | Sitting | " |

TABLE II. SLOW FIRE

| Range Inches | Time | Shots | Target | Position | Remarks |
|---|---|---|---|---|---|
| 1,000 | 1 min. per shot | 4 | Rifle A 1,000 in. | Prone | w/o sling |
| 1,000 | " | 8 | " | Sitting | " |
| 1,000 | " | 8 | " | Kneeling | " |
| 1,000 | " | 8 | " | Squatting | " |
| 1,000 | " | 8 | " | Standing | " |

TABLE III. SUSTAINED FIRE

| Range Inches | Time Seconds | Shots | Target | Position | Remarks |
|---|---|---|---|---|---|
| 1,000 | 48 | 8 (2 mags. 4 ea.) | Rifle D 1,000 in. | Standing 1 mag. Prone 1 mag. | 4 rds. standing reload, prone & fire 4 rds. |
| 1,000 | 48 | " | " | Standing 1 mag. Sitting 1 mag. | 4 rds. standing reload sitting & fire 4 rds. |
| 1,000 | 48 | " | " | Standing 1 mag. Kneeling 1 mag. | 4 rds. standing reload kneeling & fire 4 rds. |
| 1,000 | 48 | " | Rifle A 1,000 in. | Standing to prone | Prone position fire 4 rds. reload fire 4 more rds. |
| 1,000 | 48 | " | " | Standing 1 mag. sitting, kneeling or squatting 1 mag. 4 rounds | Fire 4 rds. standing, take sitting, kneeling or squatting & fire 4 rds. |

The following are the scores necessary for qualification with the carbine at the 1,000 inch range.

| | Carbine equipped with L-type sight | Adjustable sight |
|---|---|---|
| Expert | 172 | 177 |
| Sharpshooter | 150 | 155 |
| Marksman | 124 | 129 |

Tables No. I and II on the 1,000 inch range are to be fired for practice only. Table III is to be fired once only for record.

*Record Firing at 100 and 200 yards.* The following is a table prescribed in FM 23-7 for record firing of the carbine on the 100 and 200 yard ranges. On posts where it is impracticable to have a 100 and 200 yard range the commanding officer may set up a course varrying somewhat from that prescribed.

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TABLE III

| Range Yards | Time Sec. | Shots | Target | Position | Remarks |
|---|---|---|---|---|---|
| 100 | 48 | 8 (2 mags. 4 ea.) | A. | Standing (1 mag 4 rds.) Sitting or squatting 1 mag. | Fire 4 rds. standing, reload, take sitting or squatting position, fire 4 rds. |
| 100 | 48 | " | " | Standing, 1 mag. 4 rds. Kneeling or squatting 4 rds. 1 mag. | Fire 4 rds. standing, reload, take kneeling or squatting position, fire 4 rds. |
| 200 | 48 | " | B. | Standing 1 mag. 4 rds. Sitting or squatting 1 mag. 4 rds. | Fire 4 rds. standing, reload, take sitting or squatting position, fire 4 rds. |
| 200 | 48 | " | " | Standing 1 mag. 4 rds. Kneeling or squatting 1 mag. 4 rds. | Fire 4 rds. standing, reload, take kneeling or squatting position, fire 4 rds. |
| 200 | 48 | " | " | Standing to prone. | Take prone position, fire 4 rds., reload, fire 4 rds. |

At the Army Service Force's Training Center (Ord), Aberdeen Proving Ground, Md. The following course was set up to fire the record course with the carbine due to the fact that the only range available was the standard 200 yard rifle range.

The following is a copy of the score card used on this range. It is a very comprehensive course and has some advantages over the prescribed 100 and 200 yard course.

200 yards Date .....

Name ..... Org. .....

Target ..... Order .....

| | SLOW FIRE | TOTAL |
|---|---|---|
| Prone ( B ) Target | | |
| Sitting or Squatting ( B ) Target | | |
| Kneeling or Squatting ( B ) Target | | |
| Standing ( B ) Target | | |

Note: Squatting position may be used in place of either kneeling or sitting position in slow fire.

Scorers Signature ..... Officer's Signature .....

| "B" CENTERS | RAPID FIRE | TOTAL |
|---|---|---|
| Standing (Top Bull) | Prone (Bottom Bull) | |
| Standing (Top Bull) | Sitting (Bottom Bull) | |
| Standing (Top Bull) | Kneeling (Bottom Bull) | |

Scorers Signature ..... Officer's Signature .....

Total Score .....

The qualification scores for the 100 and 200 yard range shown in table III are as follows:

| | Carbine equipped with L-type sight | Adjustable sight |
|---|---|---|
| Expert | 175 | 180 |
| Sharpshooter | 160 | 165 |
| Marksman | 135 | 140 |

For the qualification course that was set up by the training center at Aberdeen Proving Ground the following scores are necessary for qualification.

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| | L-type sight* |
|---|---|
| Expert | 175 |
| Sharpshooter | 160 |
| Marksman | 135 |

* Note: No carbines with the adjustable sight have been available so no scores with this weapon are shown.

On the above-mentioned course the target is made up as follows: The regular rifle target frame that is used with target 'A' is used but instead of only having one bull with a ten inch center, two 'B' centers are used. One is placed in the upper right-hand corner and the other is placed in the lower left-hand corner. On rapid fire, the firer first fires at the upper bull and then fires at the lower bull, changing magazines between the two sequences of fire. Two magazines are fired, each one being loaded with 4 shots.

## MACHINE GUN MARKSMANSHIP

The information and suggestions contained in this section are for the purpose of giving the officers in charge of ordnance troops a guide for instruction of troops on machine guns. For more technical information on nomenclature, description, functioning, stripping, etc., the reader is referred to Chapter 1, Volume II, Small Arms.

Basically, the principles of training on machine guns are the same for any type of machine gun. Normally, a total of 60 hours is required for instruction of troops in the care, employment, and actual firing of any one machine gun; however if instruction has been completed on one type or model, officers will find that there are a great many of the principles that are applicable to all machine gun instruction. Repetition of instruction though is usually helpful. If time is short, training schedues can be cut down and time spent where it is most needed.

The recommended method of instruction is the coach and pupil method. By using this method the instructor has more time for instruction of the group as a whole. Each coach is actually another instructor or assistant. The coach, working right with his pupil, can see and correct errors made by the student that the instructor cannot see. It is best to instruct or review the coaches prior to starting so that an exact and uniform method of instruction is attained.

Normally the applicatory system of instruction, consisting of explanation, demonstration, application (practical work) and examination is used. The initial explanation and demonstration is presented to the assembled unit by the instructor and then carried through by the students. Each phase of the course is covered by explanation by the instructor before going on to the demonstration.

Demonstrations which are skillfully executed simplify instruction and add interest. They should be short and concise and leave an exact impression with no superfluous details. Subjects and demonstrations should be arranged in a progressive sequence and, where practicable, should alternate with practical work to permit the student to fix these successive phases of instruction in his mind. Machine guns and equipment used for demonstrations should be the best available and so placed that every student can see and hear every part of the demonstration. It is necessary that any demonstration proceed smoothly and illustrate clearly and simply the phase of instruction presented. Repetition of short important steps of demonstration are valuable.

The third step, application, is the most important because it gives the student an opportunity to accomplish that which has been previously explained and demonstrated. Under the supervision of a coach, the student is quick to learn for himself. If the coach system is not feasible, the best results are obtained if the unit is divided into groups. Each group is provided with a set of equipment and placed under direct supervision of a trained assistant instructor. Groups should be small (not more than 6 or 8 men). The group executes the demonstrated phase of instruction, rotating within the group until all men have mastered the instruction. If a majority of men fail to master the instruction within the allotted time or if they are kept at one exercise to the point of boredom, be quick to change the time schedules accordingly. Frequent rotation of duties within each group is preferable.

An informal oral or practical examination or critique should be conducted upon completion of each phase of instruction. In addition to the required preliminary gunner's text, the organization commander should conduct such additional exami-

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nations as are necessary to assure him that all men have completed satisfactorily the various courses of instruction. Upon conclusion of a practical exercise the instructor should conduct a short critique. The instructor calls attention to errors which have been committed and explains how they should be corrected or avoided. He should not fail to commend work well done.

**Mechanical Training.** The applicatory system lends itself readily to teaching the machine gun. Use standard reference books for data for the lecture. Each group of students with its set of equipment and under the direct supervision of an assistant instructor is assembled in a suitable area. Explanation and demonstration are concurrent. Each assistant demonstrates elements of the particular phase of instruction. Short periods of practical work are decentralized under assistant instructors.

The equipment necessary per group is one gun tripod, ammunition belt, dummy cartridges, and a combination wrench or tool.

The necessity for making proper head space adjustment on any machine gun can be shown as follows:

Loosen head space adjustment. Screw the barrel into the barrel extension until breech end is flush with the inside of the barrel extension. Place bolt in its guides, push it fully forward and lock by holding up on breech lock. Then hold the parts locked, work bolt backward and forward, and notice the independent movement of the bolt.

Tighten head space adjustment. Release the breech lock and screw barrel in as far as it will go. Push bolt as far forward as possible and attempt to push enough forward to allow breech to lock. Note that it will not go.

In training on assembly and disassembly, spare bolts, lock frames, barrel extensions (cal .30), oil buffer assemblies (cal .50), etc., are desirable. After the explanation and demonstration by instructor be sure that practical work by each student is completed.

Interest in care and cleaning of the gun and accessories may be stimulated by comparing it to any other piece of machinery. A definite procedure of preventive maintenance designed to prevent failures of the gun and points to be observed before, during, and after firing should be stressed.

A 'functioning' board or a cut-a-way gun will facilitate instruction. A gunner should have a practical working knowledge of the functioning of a machine gun if he is to exact its best performance. The student should be encouraged to visualize and not memorize. The students' ability to visualize the continuity of the functioning can be tested by asking questions which require answers combining parts of several phases *e. g.,* "The first cartridge in the belt is positioned against the cartridge stops. The bolt is forward. Explain the functioning of the parts involved in loading this round into the chamber."

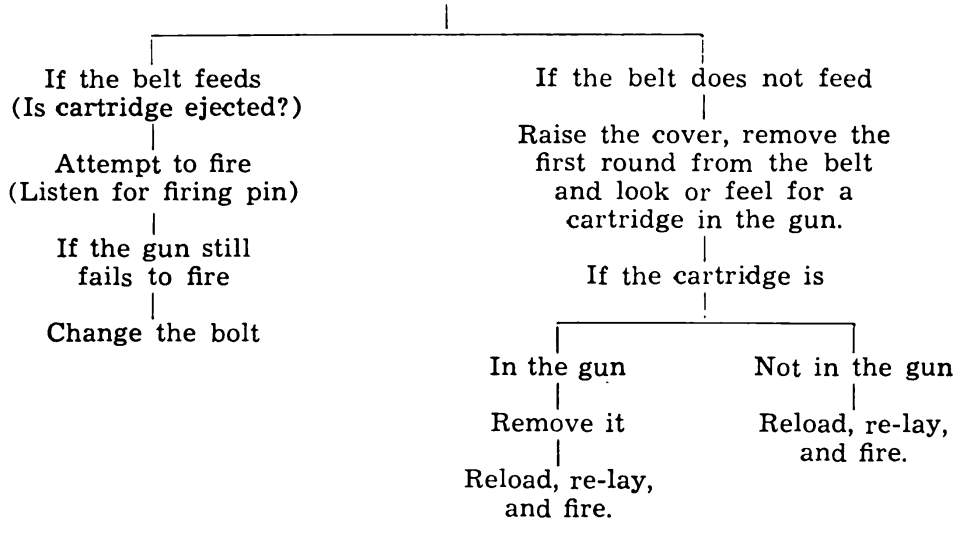
Speed is essential in the application of 'immediate action.' Consequently all members of the gun crew should be given training both as gunner and assistant gunner. Whenever it is impracticable to prepare actual stoppages, the gun crew should be required to perform the proper phase of immediate action simulating the use of ammunition.

*Procedure.* The procedure for immediate action is shown in the following diagram:

IMMEDIATE ACTION
|
The gun fails to fire
|
Straighten belt
|
Pull the bolt to the rear, release it and attempt to fire
|
If the gun still fails to fire
|
Tap the cover, pull the belt to the right, hold the left hand on the belt at the

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point where the cartridges enter the feedway and pull the bolt to the rear and release it.




NOTES. 1. If the procedure outlined above does not place the gun in action, the gunner must inspect the feed mechanism and the working parts of the gun to include inspecting the chamber for a ruptured case in order to locate and reduce the stoppage.

2. If the bolt stops just short of *home,* frequently it can be pushed fully forward and firing continued without application of immediate action. *Caution:* Release the trigger before pushing the bolt forward.

3. Stoppages caused by defective feed mechanism can sometimes be remedied temporarily by pulling the belt to the right with just sufficient force to assist the feed mechanism in positioning the leading round.

Immediate action is practiced slowly and accurately at first, speed being added gradually. It is desirable to conclude training in immediate action by following the theoretical instructions and drill with actual firing of a belt containing a number of prepared stoppages.

*Training For Placing Guns in Action.* When combat vehicles are prepared for action the machine guns are mounted therein. The guns for which ground tripods are carried may be dismounted from the vehicle and placed in action on the ground in case of a disabled vehicle or other necessity. Officers should train their men in the correct procedure of mounting and, where applicable, quickly dismounting guns from the vehicles and putting them into action on ground mounts. This training in evacuating a disabled vehicle may be conducted concurrently with training in technique of fire. Have crews go into dismounted action or evacuate the vehicle and engage appropriate targets from the ground.

When time and circumstances permit, reconnaissance, selection of gun positions, assignment of fire missions, and issuance of fire orders to effect coordination and control are accomplished by vehicle or higher commanders. The detailed duties and movements of several gun-crew members in dismounting the gun, ammunition, and accessories from the vehicle and placing the machine gun in dismounted section will vary with the type of vehicle and size of crew used. Guns of the same vehicle are seldom placed within 50 yeards of each other. Although speed is essential in this drill judicious use should always be made of covered routes of approach and tactical cautions observed. (Concealment, security, dispersion, etc.)

*Marksmanship.* Marksmanship is the basic step in training the gunner to employ his weapon successfully (i.e. efficiently) in combat. A gunner will subconsciously apply in combat the principles he has been taught. There the instructor should teach sound proven principals and constantly guard against artificialities which tend to creep in for the purpose of obtaining better scores. Following the instructor's demonstration, the groups do practical work on individual sets of equipment under direct supervision of assistant instructors. Firing exercises on the 1000 inch range are usually best conducted under centralized control.

During the course in preparatory range training, the gunner learns the mechanics


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of engaging a target (except actual firing), and observing and adjusting his fire. All preparatory training may be done in barracks. Each man must thoroughly master instruction before he is permitted to fire.

The essentials of machine gun marksmanship are the accurate delivery of the initial burst of fire and mechanical skill in manipulating the gun to obtain proper distribution of fire over targets.

Fire is adjusted by observance of strike or flight of tracer bullets and frequent re-laying of the gun during firing.

Speed is essential in combining the three above mentioned elements in delivering fire.

The machine gun reacts in direct proportion to the mechanical skill with which it is operated.

Equipment per group:

1. One sighting bar, complete. See figure 141.
2. One sighting target (spotter).
3. One leading target (silhouette).
4. One 3 x 5 target with mounting rack.
5. One 1000-inch target of each type used.
6. One machine gun complete with mount.
7. Sight blackening material (if applicable).
8. Tissue paper for copying shot groups (triangles).
9. Pencils, blackboard, charts, etc., on option.
10. 1000-inch moving target range.

The number of men to fire and the range facilities determine to a great extent details of administration and supply incident to firing the courses. These matters should be anticipated. Men waiting to fire may be perfecting their preparatory exercises by using guns which are not in use on the firing line. They may also derive valuable instruction from watching others fire and listening to critiques of firing exercises of other men.

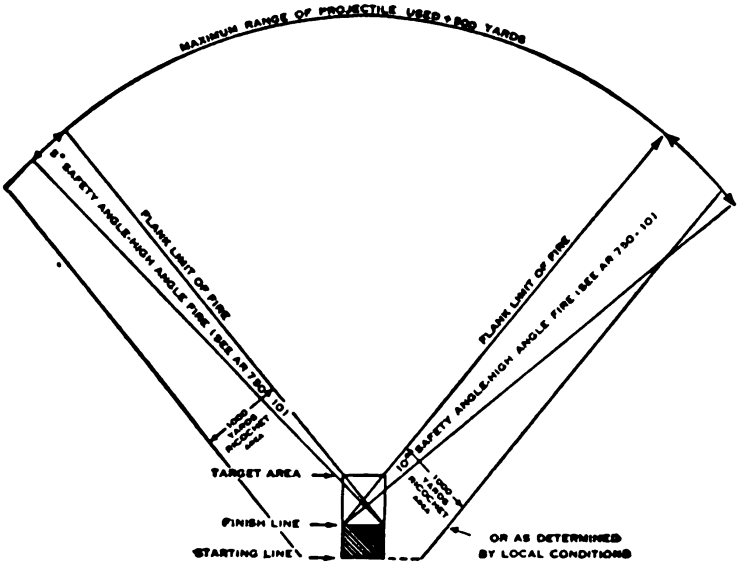



**Figure 154. Free-Firing Range Layout.**

Rigid inspection of ammunition and retention of the best available for record practice will pay valuable dividends. During moving target firing, the number of men who can fire at any one target simultaneously can be increased by painting about ½-inch of the tips of the bullets with material of different colors so that shots fired by different men on the same target can be identified. Any material which is non-injurious to the guns and which leaves a definite record of identification on the target is suitable for this purpose. Use of melted colored paraffin, water and colored chalk, or chalk and ink and turpentine has been found satisfactory. Roll the belts of ammunition and dip the tips in a shallow pan of the coloring material.

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*Construction of Targets.* For detailed information relative to targets and target accessories see AR 760-400.

Suitable substitutes for regular printed targets can be made of wrapping paper. Dimensions must be accurate. An improvised stencil or stamp can be cut from linoleum.

*Ranges.* The length of the firing line is dependent on terrain and number of guns to be fired simultaneously. Gun interval should be about 5 yards. Depth should be not less than 40 yards. Area should be open and level. It is best if fire is delivered into a steep bank. Space in rear of firing line is necessary to permit supplementary instruction in preparatory training and to accommodate details incident to administration and supply.

Changing of targets is facilitated by placing the targets in a frame carried on a car which runs on a light track from firing point to target position. Attached rope permits target carriage to be operated from behind the firing line.

Pits conveniently placed for scoring, and target details, with telephone communication or F. M. radio (which has proven very adaptable) will facilitate scoring and changing targets. Pit to firing line communication and vice versa is most important. Pits must be impervious to the type and caliber of ammunition used and of a sufficient number to permit efficient functioning.

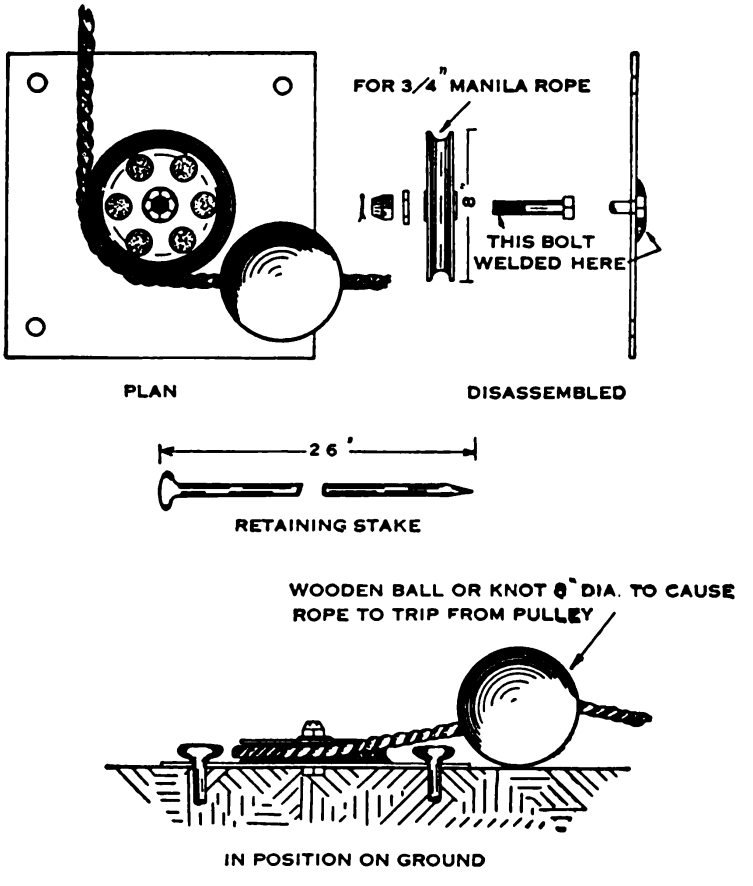



**Figure 155. Layout for Moving Target Range.**

*Technique of Fire.* Advantage should be taken of all suitable exercises to practice control of fire by issuance of initial and fragmentary fire orders.

Ammunition allowances and safety precautions for training in technique of fire are contained in AR 775-10.

Where firing is done, targets should be examined and in applicable cases scored and posted on bulletin boards. Interest is stimulated by letting gunners know results of their marksmanship and fire distribution. Use of landscape targets on the 1000 inch range is beneficial in conducting instruction in target designation, fire distribution, and fire control.

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A firee-firing range, see figure 154, layouts permits any of the M.G.'s firing to engage any targets within the target area by various prescribed methods of fire distribution. This range may be combined if terrain is suitable with a moving target range.

*Range Layout Using Flank Towing Vehicle.* The terrain must permit target changes in elevation as well as direction, Special emphasis in laying out such a course will be given to firing at ranges below 500 yards.

A ¼-inch wire cable may be used for towing; however, it is difficult to splice. Unless the ground is rocky, a ¾-inch manila hemp rope is better.

Figure 155 shows the pulley layout to create changes in the direction of the target. In the absence of pulleys, a piece of 4-inch pipe, driven into the ground until 5 or 6 inches protrude, will serve. With the pulley arrangement, the tow rope is attached to the top edge of the target sled and a large knot about 8 inches in diameter, or preferably a wooden ball, is placed in the rope approximately 15 feet ahead of the target to cause the towrope to jump off the pulley. If the pipe is used, the towrope is attached to the target on a special bracket about 18 inches from the ground. A drum similar to that shown in figure 156 is installed at each curve in the road traveled by the towing vehicle.

After training the personnel, an exercise can be fired every 6 or 8 minutes provided two towing vehicles are used.

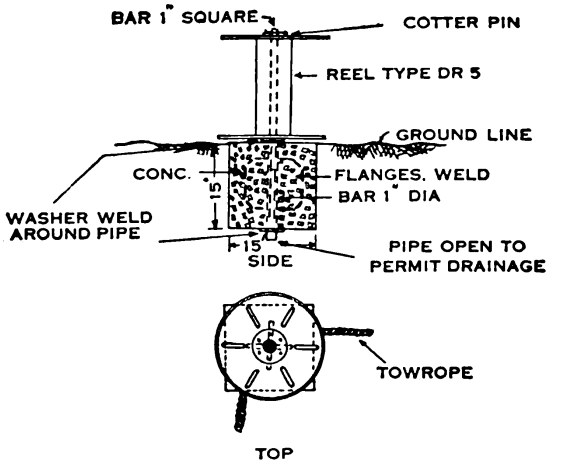



**Figure 156. Roadway Drum for Moving Target Range.**

The second vehicle, as soon as safety permits after a run has been made, moves to the old target (fig. 157). The towrope is unhooked from the old target and fastened to a new one. The second truck then proceeds around the course in reverse order while personnel following in rear of the truck engage the towrope over the successive pulleys. The vehicle seats the target for its run, moves the towrope, and notifies the firing line that it is ready. The used target is carried to the scoring point by the first towing vehicle.

The starting and finish positions of the towing vehicle are marked by flags.

The permissible extent of the firing angle must be determined accurately by laying off a line from the left gun through the extreme right of the target course and another line from the right gun to the extreme left of the target course (fig. 154). Add the safety angles and the ricochet danger areas on the right and left of the established firing angle as shown in figure 158. The ricochet angles will be determined by test firing in doubtful cases.

Markers will be placed so as to define clearly the right and left limits of fire.

The starting point of the towing vehicle will be at a safe distance on the flank opposite that on which the target appears.

Vehicles and personnel working on the course will be equipped with scarlet flags and must be directed by definite signals or commands.

There will be a safety officer or noncommissioned officer for each firing vehicle who will see that the gunner never endangers the target detail, never fires outside the prescribed safety limits, ceases firing upon command, clears his gun

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and stands away from it before the target detail moves onto the range, does not load until the range is clear, and that the vehicles of firing guns will remain stationary on the firing line.

**Antiaircraft Firing.** It is this phase of machine gun firing that ordnance troops will probably use most frequently in the field. Forward ordnance installations

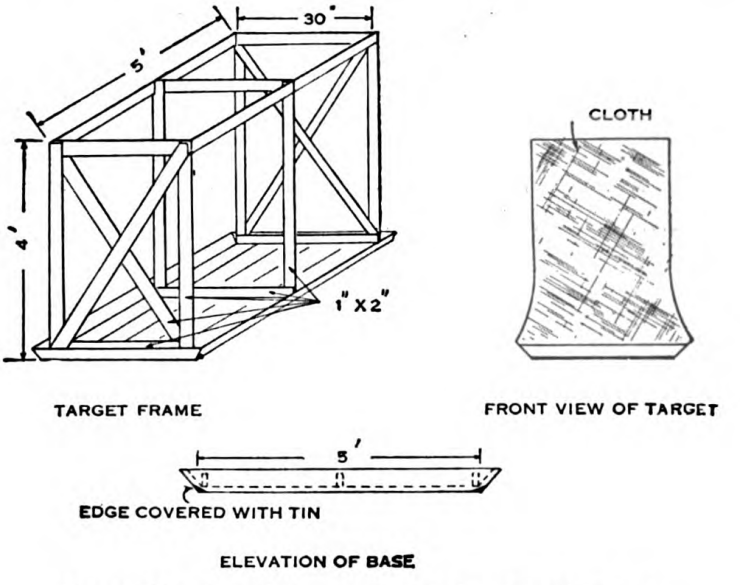



**Figure 157. Target Frame for Moving Target Range.**

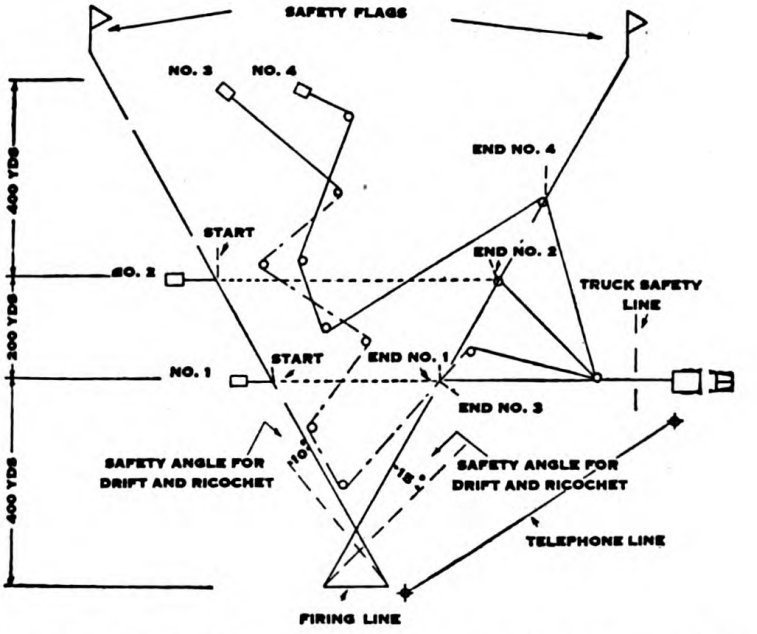



**Figure 158. Ground Moving Target Range, Towing Vehicle on Flank.**

have been called 'Stuka-bait' because of the relative difficulty of concealing them and the recognized importance (by the enemy) of maintenance work. Any ordnance troops going into combat zones should receive training on antiaircraft firing, especially with dual caliber .50 M.G. mounts and vehicular mounts. It should be anticipated that all machine guns will be dug in or emplaced whenever the situation permits so that they can deliver more effective A.A. protection to the bivouac area. Each gun must have an effective field of fire, protection, and some degree of camouflage. There must be a calculated, even distribution of guns

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so that they are mutually supporting, protect all the area, and are able to catch enemy planes in a cross fire.

For effective training the lateral firing angle should not be less than 75°. Safety angles on each side of firing angle must be wide enough to cover maximum lateral leads used. See AR 750-10. Airplane courses laid across a firing angle of 75°, parallel to the firing line at a ground distance of 100, 300, and 450 yards will require the following lateral leads for a sleeve traveling at 200 miles an hour at a height of 400 yards above the ground (400-yard height based on a 600-yard towline):

| Slant range in yards | Visible to observer |
|---|---|
| 1,000 | General outline of airplane. |
| 700 | Wheels, rudder, wind struts, tail skid. |
| 500 | Antenna and small projections from fuselage. |
| 200 | Symbols, numbers, and letters. |

| Ground range in yards | Slant ranges | | | Lateral leads | | |
|---|---|---|---|---|---|---|
| | Flank | Center | Flank | Flank | Center | Flank |
| 100 | 400+ | 400+ | 400+ | 8 | 8 | 8 |
| 300 | 550 | 500 | 550 | 12 | 10 | 12 |
| 450 | 700 | 600 | 700 | 16 | 14 | 18 |

| Slant range in yards | Visual target length leads (30-foot airplane length used) | Visual target length leads (15-foot sleeve length used). (See note.) | | |
|---|---|---|---|---|
| | | Plane speed in mph— | | |
| | | 200 | 300 | 400 |
| 100 | 1 | 1 | 2 | 3 |
| 200 | 2 | 2 | 3 | 4 |
| 300 | 3 | 3 | 5 | 6 |
| 400 | 4 | 4 | 6 | 8 |
| 500 | 5 | 5 | 8 | 10 |
| 600 | 7 | 7 | 11 | 14 |
| 700 | 9 | 9 | 14 | 18 |
| 1,000 | 13 | 13 | 20 | 26 |

Note.—Visual target lengths, dependent on the direction of approach of the airplane rather than on actual airplane lengths, must be used.

**Deflection Due to Wind.** The following table indicates the windage changes necessary in mils to compensate for a 10-mile wind:

| Range (yards) | Correction (mils) | | |
|---|---|---|---|
| | 3-9 o'clock | 2-4-8-10 o'clock | 1-5-7-11 o'clock |
| 500 | 1 | 1 | 0.5 |
| 1,000 | 2 | 1.5 | 1 |
| 1,500 | 3 | 2.5 | 1.5 |
| 2,000 | 4 | 3.5 | 2 |

For winds of greater or less velocity corrections are directly proportional; therefore, when wind velocity is double that shown in the table, correction to be applied is double that shown.

**Additional Training Equipment.** The machine gun trainer, caliber .22, M4, is provided for training purposes. This trainer assembly will mount on any cal .30 machine gun. It consists of a group of components and assemblies to convert a .30 gun to fire .22 long rifle cartridges. The operation of the M.G. is the same after the modification.

**Preliminary Gunner's Test.** This is a comprehensive practical examination of the gunner in mechanical training and preparatory range training as set forth in sample.

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.30 CAL. MG PRELIMINARY GUNNER'S TEST

(Last name) (First name) (Initial) (Grade) (Organization)

| No. | Machine-gun test, caliber .30 | Satisfactory | Date | Initials [1] |
|---|---|---|---|---|
| | | Yes (√) or No (X) | | |
| 1 | Disassemble machine gun | | | |
| 2 | Demonstrate and explain how to make head space adjustment and quick head space adjustment | | | |
| 3 | Disassemble and assemble bolt | | | |
| 4 | Disassemble and assemble lock frame | | | |
| 5 | Assemble machine gun | | | |
| 6 | Demonstrate application of immediate action | | | |
| 7 | Explain one action in functioning (to be drawn from a number of all phases of functioning). | | | |
| 8 | Explain why Browning machine gun will not fire with cover unlatched | | | |
| 9 | Demonstrate and explain how to use ruptured cartridge extractor | | | |
| 10 | What are the points to be observed before, during, and after firing? (Demonstrate where practicable) | | | |
| 11 | What are the precautions to be observed during and after a gas attack? | | | |
| 12 | How should bore of machine gun be cleaned and oiled after firing (assume no metal fouling present)? | | | |
| 13 | Explain care and cleaning of remainder of the machine gun | | | |
| 14 | Demonstrate and explain proper care to be given telescopic sight and sight brackets | | | |
| 15 | Explain care, adjustment, and lubrication of gun mounts | | | |
| 16 | Inspect a loaded belt of dummy ammunition and make any corrections necessary to prepare it for firing. (Belt to have at least one each of the following: short round, deformed round, round pushed too far into the belt link or loop, round not pushed far enough into belt link or loop) | | | |
| 17 | Make two satisfactory aiming triangles. (Two out of three triangles which are satisfactory as to size are considered "Satisfactory" in grading this question. If a candidate cannot make two such triangles out of three attempts he should receive "Unsatisfactory.") Triangles made at 1,000 inches should fit within a circle of ½-inch diameter | | | |
| 18 | Mount machine gun (and telescopic sight when used) and test for proper functioning and adjustment of gun and mount | | | |
| 19 | Explain how to target gun at 1,000 inches | | | |

(Signature of officer in charge of test) (Grade) (Organization)

[1] Where one officer or noncommissioned officer gives the complete examination, initials may appear once—after the last question.

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.50 CAL. MG PRELIMINARY GUNNER'S TEST

(Last name) (First name) (Initial) (Grade) (Organization)

| No. | Machine-gun test, caliber .50 | Satisfactory Yes (√) or No (X) | Date | Initials [1] |
|---|---|---|---|---|
| 1 | Disassemble machine gun as far as it should be disassembled by members of the gun squad, pointing out extent of disassembly required for ordinary daily cleaning after firing, and parts which should be disassembled only occasionally | | | |
| 2 | Assemble machine gun | | | |
| 3 | Demonstrate and explain how to make and to check head space adjustment | | | |
| 4 | Demonstrate application of immediate action | | | |
| 5 | Explain one action in functioning (to be drawn from a number of all phases of functioning) | | | |
| 6 | Explain why machine gun will not fire with cover unlatched | | | |
| 7 | Demonstrate and explain how to remove round from T-slot | | | |
| 8 | What are points to be observed before, during, and after firing? (Demonstrate where practicable) | | | |
| 9 | What are precautions to be observed during and after gas attack? | | | |
| 10 | How should bore of machine gun be cleaned and oiled after firing? (Assume no metal fouling present) | | | |
| 11 | Explain care and cleaning of remainder of machine gun | | | |
| 12 | Demonstrate and explain proper care to be given telescopic sight | | | |
| 13 | Explain care, adjustment, and lubrication of gun mount | | | |
| 14 | Inspect loaded belt of dummy ammunition and make any corrections necessary to prepare it for firing. (Belt to have at least one each of the following: short round, deformed round, round pushed too far into belt link or loop, round not pushed far enough into belt link or loop) | | | |
| 15 | Make two satisfactory aiming triangles for both stationary and moving targets. (Two out of three triangles which are satisfactory as to size are considered "Satisfactory" in grading this question. If a candidate cannot make two such triangles out of three attempts, he should receive "Unsatisfactory.") Triangles made at 1,000 inches for aiming at stationary target should fit within a circle of ½-inch diameter; for moving target, 1-inch diameter | | | |
| 16 | Mount machine gun (and telescopic sight when used) and test for proper functioning and adjustment of gun and mount | | | |
| 17 | Explain how to target gun at 1,000 inches | | | |
| 18 | Memorize and explain use of lead table | | | |
| 19 | Demonstrate assembly of belt feed pawl arm for both right- and left-hand feed, and explain reason for position of arm | | | |
| 20 | Explain why it is necessary that bolt be closed before attempting to screw in barrel | | | |
| 21 | Point out correct position of guide on piston rod of oil buffer, and explain what effect would be if this guide were reversed | | | |
| 22 | Demonstrate and explain what would happen if cover were closed while bolt is open | | | |
| 23 | Demonstrate and explain how to clear gun | | | |
| 24 | Change bolt. Explain interferences encountered while inserting bolt into receiver, and how they are removed by raising bolt latch. Explain why it is necessary to recheck head space | | | |
| 25 | The sear slide has a pointed end and a square end. Explain position of this slide in bolt | | | |
| 26 | Demonstrate and explain effect of changing position of belt feed lever plunger and spring | | | |
| 27 | Demonstrate and explain why it is necessary that bolt latch release lock be unlocked before removing back plate | | | |

(Signature of officer in charge of test) (Grade) (Organization)

[1] Where one officer or noncommissioned officer gives the complete examination, initials may appear once after last question.

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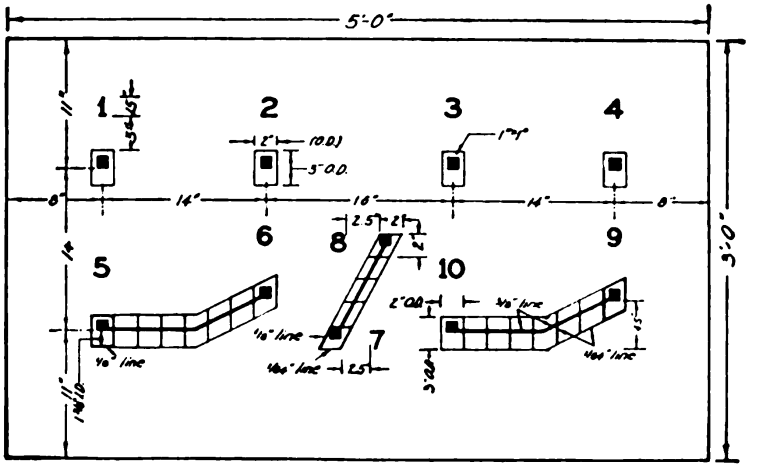



Figure 159. 1,000-inch MG Target.

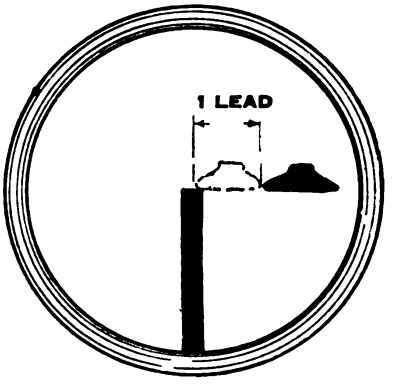



Figure 160. Sight With One Target—Length Lead.

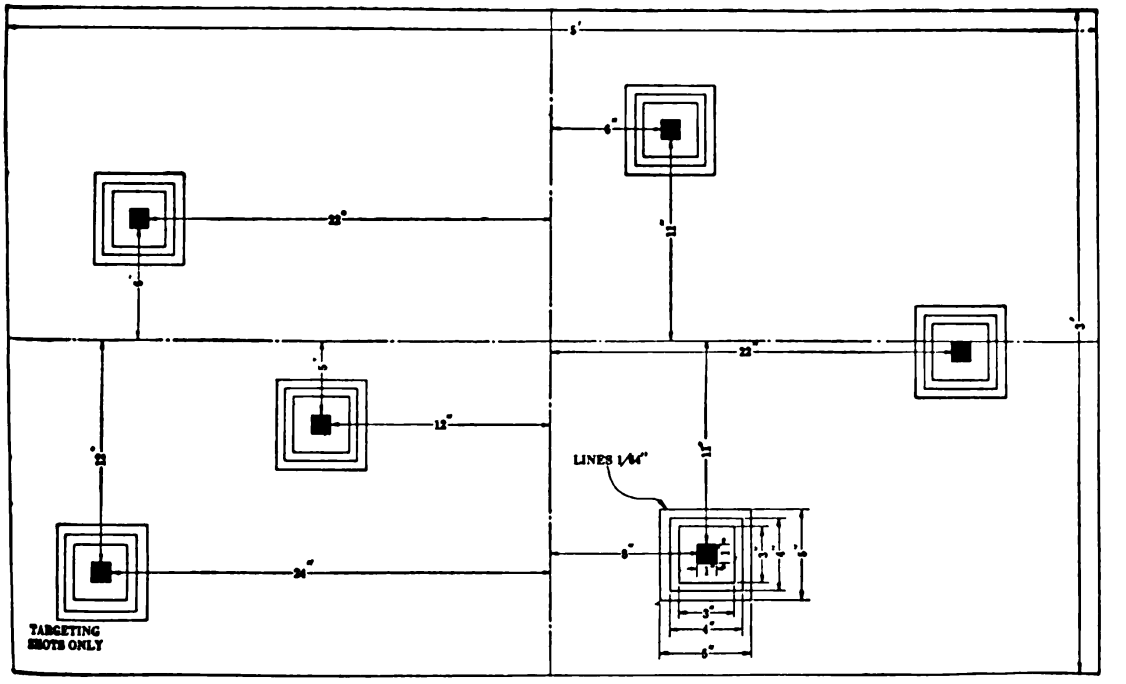



Figure 161. 1,000-inch Tank Target.

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**Sample Exercises.** (1) Fire tracer bullets over level ground at ranges such as 500 to 1500 yds. Point out flatness of trajectory and danger space.

(2) Stake out on diversified terrain markers visible up to 500 yards. Impress the men with the appearance of targets (actual men or materiel) at the various ranges from prone, crouching, and standing position. Conduct further exercises in range estimation.

(3) On a fairly level piece of ground, place the soldiers undergoing instruction, dismounted, so that they can observe vehicles moving on cross courses 300, 500, and 900 yards away, on oblique courses from respective far corners to opposite near corners and vice versa, and on a perpendicular course from front to rear and vice versa. Have a vehicle move over such course a sufficient number of times at speeds of 7½, 15, and 30 miles an hour. Initially, announce each speed prior to the run; later, diversify runs and speeds unannounced. Stress importance of estimating speeds, direction of movement, and ranges. Have estimates of unannounced speeds recorded and published.

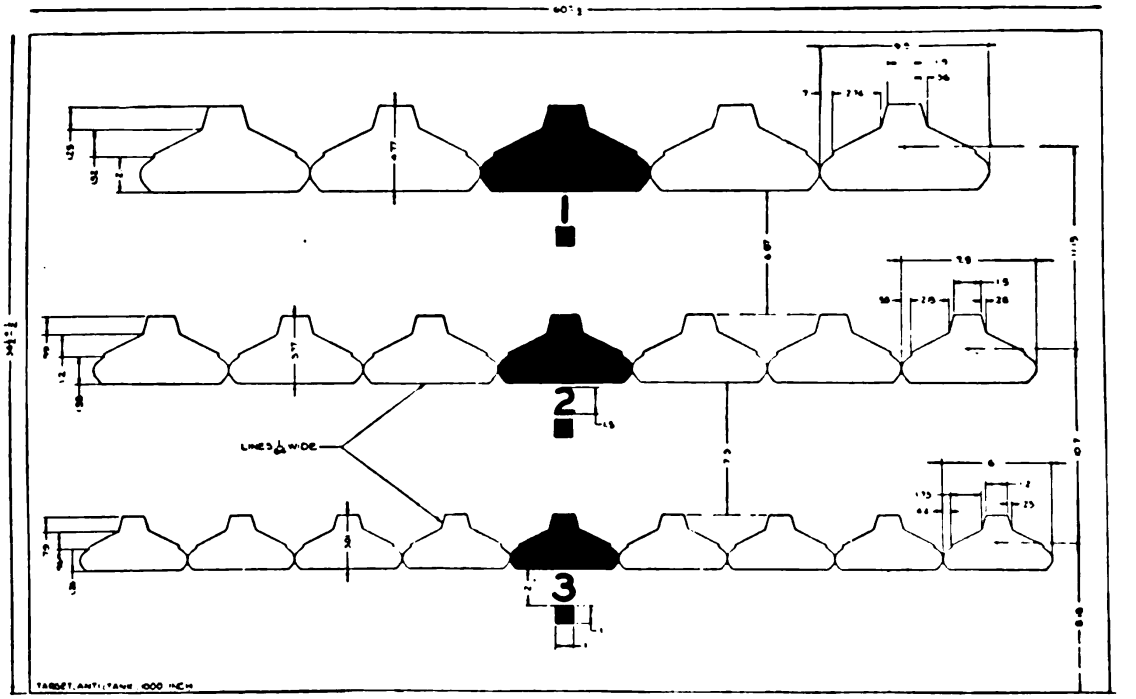



**Figure 162. 1,000-inch AT Target.**

Further exercises can be carried through under an officer with initiative and imagination, *i. e.*, on defensive positions, topographical terms, engaging a target, approach marches, determination of range and speed of aircraft, overhead fire, and numerability of armored vehicles.

The preliminary gunners' test is to be completed within a period of 6 months prior to the time they fire any part of the qualification course. The date of the completion of preliminary gunner's test will be entered on the individual score card.

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# PRACTICE AND QUALIFICATION COURSES

## GROUND STATIONARY TARGETS

INSTRUCTION PRACTICE

1,000-INCH RANGE, CALIBER .22 MACHINE GUN

TABLE I

| Range (Inches) | Time | Number rounds | Target | Remarks |
|---|---|---|---|---|
| 1,000 | No limit | 10 | MG 1,000-inch for cal. .30 HMG (D33225). Firing on numbered squares 5, 6, 7, 8, 9, and 10 in sequence. | Targeting allowance per man during instruction practice. |
| 1,000 | ----do---- | 12 | ---- do ---- | Distribution of 2 rounds in each of 6 scoring spaces. |

TABLE II

| Range (Inches) | Time | Number rounds | Target | Remarks |
|---|---|---|---|---|
| 1,000 | Seconds 55 | 12 | MG 1,000-inch for cal. .30 HMG (D33225). Firing on numbered squares 5, 6, 7, 8, 9, and 10 in sequence. | Distribution of 2 rounds in each of 6 scoring spaces. |

NOTES. 1. Tables I and II may be repeated within the limitations of time and ammunition available. Application and reduction of time limit should be gradual and progressive.
2. Tables I and II may be fired on heavy machine gun target, machine gun, SB 500-inch at 500 inches.

## GROUND MOVING TARGETS

Tables III, IV, V, and VI are fired on target, antitank, 1,000-inch. In each table the target numbers referred to (1, 2, and 3) indicate silhouettes numbered 1, 2, and 3 from top to bottom of the target.

TABLE III—Tracking exercise

| Range (inches) | Number rounds | Target number | Speed in inches per second | Lead | Direction of target movement |
|---|---|---|---|---|---|
| 1,000 | 10 | 1 | 24 | Zero | L. to R. |
| 1,000 | 10 | 1 | 24 | ---do | R. to L. |
| 1,000 | 10 | 2 | 15 | ---do | L. to R. |
| 1,000 | 10 | 2 | 15 | -- do | R. to L. |
| 1,000 | 10 | 3 | 8 | ---do | L. to R. |
| 1,000 | 10 | 3 | 8 | ---do | R. to L. |

TABLE IV—Tracking exercise

| Range (inches) | Number rounds | Target number | Speed in inches per second | Lead | Direction of target movement |
|---|---|---|---|---|---|
| 1,000 | 10 | 1 | 24 | Zero | L. to R. |
| 1,000 | 10 | 1 | 48 | ---do | R. to L. |
| 1,000 | 10 | 2 | 15 | ---do | L. to R. |
| 1,000 | 10 | 2 | 30 | ---do | R. to L. |
| 1,000 | 10 | 3 | 8 | ---do | L. to R. |
| 1,000 | 10 | 3 | 18 | ---do | R. to L |

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TABLE V—Leading exercise

| Range (inches) | Number rounds | Target number | Speed in inches per second | Lead | Direction of target movement |
|---|---|---|---|---|---|
| 1,000 | 10 | 1 | 24 | ½ | L. to R. |
| 1,000 | 10 | 1 | 24 | ½ | R. to L. |
| 1,000 | 10 | 2 | 15 | 1 | L. to R. |
| 1,000 | 10 | 2 | 15 | 1 | R. to L. |
| 1,000 | 10 | 3 | 8 | 2 | L. to R. |
| 1,000 | 10 | 3 | 8 | 2 | R. to L. |

TABLE VI—Leading exercise

| Range (inches) | Number rounds | Target number | Speed in inches per second | Lead | Direction of target movement |
|---|---|---|---|---|---|
| 1,000 | 10 | 1 | 24 | ½ | L. to R. |
| 1,000 | 10 | 1 | 48 | 1 | R. to L. |
| 1,000 | 10 | 2 | 15 | 1 | L. to R. |
| 1,000 | 10 | 2 | 30 | 2 | R. to L. |
| 1,000 | 10 | 3 | 8 | 2 | L. to R. |
| 1,000 | 10 | 3 | 18 | 4 | R. to L. |

At least five separate shots should be fired during one run of the target. Ten rounds of ammunition are allotted for each run due to high cyclic rate of the caliber .22 machine gun and consequent probability of more than one shot being fired each time the trigger is pressed.

## BROWNING MACHINE GUN, CALIBER .30

TABLE VII
(GROUND MOUNT—STATIONARY TARGET)
To be fired from M1917A1 tripod or M2 tripod depending upon vehicular equipment.
INSTRUCTION PRACTICE (optional)

| Range | Number rounds | Target | Ideal distribution | Time allowed |
|---|---|---|---|---|
| Inches 1,000 | 10 | 1,000″ MG | 1 round in each separate scoring space and one round in first and last space of each group. | No limit. |
| 1,000 | 25 | do | 1 round in each scoring space | Do. |
| 1,000 | 50 | do | 2 rounds in each scoring space (single shot) | 3 minutes |

PRELIMINARY PRACTICE

| Range | Number rounds | Target | Ideal distribution | Time allowed |
|---|---|---|---|---|
| Inches 1,000 | 50 | 1,000″ MG | 2 rounds each scoring space (single shot) | 3 minutes |

RECORD PRACTICE
Repeat the preliminary practice under record firing conditions.

TABLE VIII
(FIXED VEHICULAR MOUNT—STATIONARY TARGET)
INSTRUCTION PRACTICE (optional)

| Range | Number rounds | Target | Ideal distribution | Time allowed |
|---|---|---|---|---|
| Inches 1,000 | [1] 5 | Tank machine gun 3-inch square. | 1 round in each of 5 scoring spaces | No limit. |
| 1,000 | [1] 15 | do | Burst of 3 rounds in each of 5 scoring spaces | Do. |
| 1,000 | [1] 25 | do | Burst of 5 rounds in each of 5 scoring spaces | 20 seconds. |

[1] Two sighting shots are allowed before each string.

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PRELIMINARY PRACTICE

| Range | Number rounds | Target | Ideal distribution | Time allowed |
|---|---|---|---|---|
| Inches 1,000 | [1] 25 | Tank machine gun 8-inch square. | Burst of 5 rounds in each of 5 scoring spaces -- | 20 seconds. |

[1] Two sighting shots are allowed before each string.

RECORD PRACTICE

Repeat the preliminary practice table under record firing conditions.

TABLE IX

(FREE VEHICULAR MOUNT—STATIONARY TARGET)

INSTRUCTION PRACTICE (optional)

| Range | Number rounds | Target | Ideal distribution | Time allowed [2] |
|---|---|---|---|---|
| Inches 1,000 | 15 | Tank machine gun 8-inch square. | Burst of 5 rounds in each of 3 scoring spaces -- | No limit. |
| 1,000 | [1] 25 | ------ do ---------- | Burst of 5 rounds in each of 5 scoring spaces -- | 20 seconds. |
| 1,000 | [1] 25 | ------ do ---------- | -------- do ---------- | Do. |

[1] Two sighting shots are allowed before each string.
[2] For a tank in which a 37-mm gun is mounted dually, increase time allowed to 28 seconds.

PRELIMINARY PRACTICE

| Range | Number rounds | Target | Ideal distribution | Time allowed [2] |
|---|---|---|---|---|
| Inches 1,000 | [1] 50 | Tank machine gun 3-inch square. | Burst of 10 rounds in each of 5 scoring spaces -- | 20 seconds. |
| 1,000 | [1] 50 | ------ do ---------- | -------- do ---------- | 20 seconds |

[1] Two sighting shots are allowed before each string.
[2] For a tank in which a 37-mm gun is mounted dually, increase time allowed to 28 seconds.

RECORD PRACTICE

Repeat the preliminary practice under record firing conditions.

TABLE X

(MOVING VEHICLE—STATIONARY TARGETS)

PRELIMINARY PRACTICE

| Range | Number rounds [3] | Target | Ideal distribution | Vehicle speed | Time allowed |
|---|---|---|---|---|---|
| Yards | | | | | Seconds |
| [1] 250 | 30 | 5 kneeling silhouettes, to right front. | Not to exceed 7 hits on any one silhouette. | Halted ---------- | [1] 20 |
| [1] 200 | 20 | 3 kneeling silhouettes, to left front. | Not to exceed 7 hits on any one silhouette. | Halted ---------- | [1] 15 |
| [1] 200–75 | 50 | Three 5-foot by 8-foot plain light colored panel targets. Long edges flush with the ground. | Not to exceed 18 hits on any one target. | Start from second halted position, attain, and maintain a uniform speed of approximately 15 miles per hour. | |
| [2] 300–75 | 100 | ------do ---------- | Not to exceed 35 hits on any one target. | Uniform speed of approximately 15 miles per hour. | |

[1] For wheel or half track vehicles only. No obstacles will be placed in the firing lane. Time for halted firing to be taken from the time the vehicle comes to complete stop until it starts again. Over-all time from the commence firing point (flag) to the cease firing point (flag) not to exceed 1½ minutes.
[2] For full track vehicles only. Standard obstacles will be placed in the firing lane (fig. 49).
[3] Every fifth round will be tracer.

RECORD PRACTICE

Repeat the preliminary practice under record firing conditions.

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TABLE XI. 1,000-INCH PRACTICE

| Range (inches) | Time | Number rounds | Target | Class of fire | Remarks |
|---|---|---|---|---|---|
| 1,000------- | Seconds 55 | [1] 12 | MG 1,000-inch (D33225) for caliber .30 HMG. | Two single shots each at scoring spaces numbered 5, 6, and 7, and bursts of 2 shots each at scoring spaces numbered 8, 9, and 10. | Fire 2 shots at each of the 6 scoring spaces numbered 5, 6, 7, 8, 9, and 10 in that sequence. |

[1] Two sighting shots are allowed in addition.

TABLE XII. KNOWN-DISTANCE PRACTICE

| Range (yards) | Time | Number rounds | Target | Class of fire | Remarks |
|---|---|---|---|---|---|
| 300 or 600 or 1,000 | 2 minutes per shot[1] | 5 | Rifle "A" "B" or "C" according to range. | Slow ---------- | Target to be pulled after each shot. Value of shot signaled and spotter placed in shot hole. |

[1] Time is cumulative for 5 shots, that is, 10 minutes are allowed for firing the string of 5 shots.
NOTE. Known-distance practice is conducted within the limits prescribed in table XII at the longest range available to the unit firing.

TABLE XIII. FIELD FIRING

| Range | Time | Number rounds | Target | Class of fire | Remarks |
|---|---|---|---|---|---|
| Maximum field range available between 800 and 1,500 yards. | 1 minute per shot[1] | 10 | 2 kneeling silhouettes placed side by side without interval, bases level with ground. | Slow---- | Use of tracer ammunition, not to exceed 30 percent (3 rounds) is optional. Facing of targets, white or green side toward firer, is optional to provide for satisfactory visibility. Exact range to be unknown to gunner within limits indicated. |

[1] Time is cumulative for 10 shots, that is, 10 minutes are allowed for firing the string of 10 shots.

TABLE XIV. MOVING TARGET PRACTICE

| Range | Time per run | Number rounds | Target | Class of fire | Remarks |
|---|---|---|---|---|---|
| Yards Minimum 300; maximum 900. | Variable not less than 30 seconds nor more than 1 minute. | 20[1] (to be fired on one run of target). | Feet 6 by 8 or 6 by 12 rectangle. | 8 rapid single shots and 4 bursts of 3 shots each. | Speed of target to vary from 10 to 30 m. p. h. Average 15 m. p. h. Direction of movement of target may vary, but will be standardized during record firing of one season. A space should be left in the belt between the eighth and ninth shots to indicate to the firer when to change the type of fire. |

[1] Load 1 tracer to 3 ball, that is, 1st, 5th, etc., rounds to be tracer.

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TABLE XV. 1,000-INCH PRACTICE

| Range | Time | Number rounds | Target | Class of fire | Remarks |
|---|---|---|---|---|---|
| Inches 1,000 | Seconds 55 | [1] 12 | MG 1000-inch (D33225) for caliber .30 HMG. | Two single shots each at scoring spaces numbered 5, 6, and 7, and bursts of 2 shots each at scoring spaces numbered 8, 9, and 10. | Fire 2 shots at each of the 6 scoring spaces numbered 5, 6, 7, 8, 9, and 10, in that sequence. |

[1] Two sighting shots are allowed in addition.

TABLE XVI—KNOWN-DISTANCE PRACTICE

| Range | Time | Number rounds | Target | Class of fire | Remarks |
|---|---|---|---|---|---|
| Yards 300 or 600 | 1½ minutes per shot [1] | 10 | Rifle "A" or Rifle "B" according to range. | Slow ----- | Target to be pulled after each shot. Value of shot signaled and spotter placed in shot hole. |

[1] Time is cumulative for 10 shots, that is, 15 minutes is allowed for firing the string of 10 shots.
NOTE.—This known-distance practice is conducted within the limits prescribed in table XVI at the longest range available to the unit firing.

TABLE XVII. FIELD FIRING

| Range (yards) | Time | Number rounds | Target | Class of fire | Remarks |
|---|---|---|---|---|---|
| 400 to 600 | Minutes ½ per shot [1] | 20 | Three kneeling silhouettes placed side by side, without interval, bases level with ground. | Rapid single shots. | Use of tracer ammunition not to exceed 20 percent (1 tracer to 4 ball) is optional. Facing of targets, white or green side toward firer, is optional to provide for satisfactory visibility. Exact range to be unknown to gunner within limits indicated. |
| 700 to 900 | 10 ---------- | 20 | ------ do ---------- | Bursts of 4 shots each. | Do |

[1] Time is cumulative for 20 shots, that is, 10 minutes are allowed for firing the string of 20 shots.

TABLE XVIII. MOVING TARGET PRACTICE

| Range (yards) | Time per run | Number rounds | Target | Class of fire | Remarks |
|---|---|---|---|---|---|
| Minimum, 300; Maximum 600. | Variable. Not less than 30 seconds nor more than 1 minute. | 20 (to be fired on one run of the target).[1] | Feet 6 by 8 or 6 by 12 rectangle. | 8 rapid single shots and 4 bursts of 3 shots each. | Speed of target to vary from 10 to 30 m. p. h.; to average 15 m. p. h. Direction of movement of target may vary, but will be standardized during record firing of one season. A space should be left in the belt between the eighth and ninth shots to indicate to the firer when to change the type of fire. |

[1] Load 1 tracer to 4 ball, that is, 1st, 6th, 11th, and 16th rounds to be tracer.

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TABLE XIX. TRACKING AND LEADING PRACTICE

| Range (inches) | Shots | Target | Speed in inches per second | Leads | Direction of target movement |
|---|---|---|---|---|---|
| 1,000 | 5 | 1 | 24 | ½ | L to R. |
| 1,000 | 5 | 1 | 48 | 1 | R to L. |
| 1,000 | 5 | 1 | 60 | 1½ | L to R. |
| 1,000 | 5 | 2 | 15 | 1 | R to L. |
| 1,000 | 5 | 2 | 30 | 2 | L to R. |
| 1,000 | 5 | 2 | 45 | 3 | R to L. |
| 1,000 | 5 | 3 | 10 | 2 | L to R. |
| 1,000 | 5 | 3 | 20 | 4 | R to L. |

## .30 and .50 CALIBER, MACHINE GUNS

SCORE CARD

Browning machine gun, caliber .30.

Name _____ Organization _____
A. S. No. _____ Place _____
Grade _____ Date _____
Preliminiary gunner's test completed (date) _____

TABLE I
(Ground mount—stationary target)

| Spaces hit | Hits | Score | Initials |
|---|---|---|---|
| | | | |

TABLE II
(Fixed vehicular mount—stationary target)

| Spaces hit | Hits | Score | Initials |
|---|---|---|---|
| | | | |

TABLE III
(Free vehicular mount—stationary target)

| | Spaces hit | Hits | Score | Initials |
|---|---|---|---|---|
| First target | | | | |
| Second target | | | | |
| Total | | | | |

TABLE IV
(Moving vehicle—stationary target)

| | Targets hit | Hits | Score | Initials |
|---|---|---|---|---|
| Silhouettes | | | | |
| Panels | | | | |
| Total | | | | |

Score, additional weapon _____
Total aggregate score _____
Qualification _____
Date of qualification _____

_____
(Signature)

Organization commander.

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SCORE CARD
Gun, Machine, Caliber .50, HB (Flex.) M2, Ground

Name _____ Organization _____
A. S. No. _____ Place _____
Grade _____ Date _____
Preliminary gunner's test completed _____

TABLE I. 1,000-INCH RANGE, STATIONARY TARGET, CALIBER .50 MACHINE GUN

| Number of rounds | Spaces hit | Hits | | Penalties | Score | Initials |
|---|---|---|---|---|---|---|
| | | 2's | 1's | | | |
| 12 [1] | | | | | | |

[1] Includes two sighting shots. Disregard sighting shots in scoring.

TABLE II. KNOWN-DISTANCE PRACTICE, CALIBER .50 MACHINE GUN
Range _____ yards. Target _____

| Number of rounds | Value | | | | | Score | Initials |
|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | | |
| 5 | | | | | | | |

TABLE III. FIELD FIRING, CALIBER .50 MACHINE GUN

| Number of rounds | Total hits | Penalties | Score | Initials |
|---|---|---|---|---|
| 10 | | | | |

TABLE IV (OR TABLE VIII). MOVING TARGET PRACTICE, CALIBER .50 MACHINE GUN (OR CALIBER .30 MACHINE GUN)

| Number of rounds | Total hits | Penalties | Score | Initials |
|---|---|---|---|---|
| 20 | | | | |

TABLE V. 1,000-INCH RANGE, STATIONARY TARGET, CALIBER .30 LIGHT MACHINE GUN

| Number of rounds | Spaces hit | Hits | | Penalties | Score | Initials |
|---|---|---|---|---|---|---|
| | | 2's | 1's | | | |
| 12 | | | | | | |

TABLE VI. KNOWN-DISTANCE PRACTICE, CALIBER .30 LIGHT MACHINE GUN
Range _____ yards. Target _____

| Number of rounds | Value of hits | | | | | | | | | | Score | Initials |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| 10 | | | | | | | | | | | | |

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TABLE VII. FIELD FIRING, CALIBER .30 LIGHT MACHINE GUN

| Range | Number of rounds | Hits | Penalties | Score | Total score | Initials |
|---|---|---|---|---|---|---|
| Between 400 and 600 yards | 20 | | | | | |
| Between 700 and 900 yards | 20 | | | | | |

TABLE VIII. RANGE 1,000 INCHES, 5 ROUNDS AT EACH RUN

| Target No. | Speed-in inches per second | Hits | Penalties | Score | Initials |
|---|---|---|---|---|---|
| 1 | 24 | | | | |
| 1 | 48 | | | | |
| 1 | 60 | | | | |
| 2 | 15 | | | | |
| 2 | 30 | | | | |
| 2 | 45 | | | | |
| 3 | 10 | | | | |
| 3 | 20 | | | | |

Total Score ----------

Requirements for qualification and requalification in marksmanship as a result of record practice are determined as follows: (1) All individuals firing the same course at the same station are considered in one group. The post commander announces the limiting dates during which all firing is competitive within this group. This period should always cover the range practice of at least one organization. After all firing has been completed, qualification is determined in accordance with AR 775-10.

(2) Score cords. (a) Entries on all score cards are made in ink or with indelible pencil. No alterations or corrections are made on the card except by the organization commander, who initials each alteration or correction made.

(b) The scores at each firing point are kept by a noncommissioned officer of some organization other than that firing on the target to which he is assigned. If this is not possible, company officers exercise special care to insure correct scoring. As soon as a score is completed the score card is signed by the scorer, taken up and signed by the officer supervising the scoring, and turned over to the organization commander. Except when required for entering new scores on the range, score cards are retained in the personal possession of the organization commander.

(c) In the pit the officer keeps the scores for the targets to which he is assigned. As soon as a score is completed he signs the score card. He turns these cards over to the organization commander at the end of the day's firing. The organization commander checks the pit records against the firing-line records. In case of discrepancy between the two records, the provisions of paragraph 1b, AR 345-1000 apply.

(3) Marking. (a) Slow fire. The value of the shot is indicated as follows:

1. A bull's eye with a white disk.
2. A four with a red disk.
3. A three with a black and white disk.
4. A two with a black disk.
5. A miss or a ricochet hit, by waving a red flag across the front of the target.

(b) The exact location of the hit is indicated by placing in the shot hole a spotter of size appropriate to the distance from the firing point. The center of the marking disk is placed over the spotter in signaling hits. No spotters are required on 1,000-inch ranges.

**Safety Precautions.** Firing will not begin on any range until the officer conducting the firing has ascertained that the range is clear and has given his authority.

No firing will be done except under the direct supervision of an officer.

No gun will be loaded or half loaded until a command to do so has been given.

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No guns will be dismounted after firing nor will any vehicle leave the immediate vicinity in which it has been firing until an officer or noncommissioned officer has inspected the guns to see that they are unloaded. As part of this inspection, a cleaning rod will be passed through the barrel from the muzzle and immediately removed. The provisions of this paragraph will not be construed to hinder the movement of vehicles while executing a firing run.

No person will be allowed in front of a vehicle for any purpose until so directed by an officer or noncommissioned officer who has ordered that all guns of the vehicle be cleared and has ascertained that the order has been completely carried out.

Danger flags will be displayed at prominent positions on the range during all firing.

Such range guards as may be needed will be posted.

Turrets will be kept locked at all times.

At 1,000-inch firing a scarlet flag will be displayed on each vehicle from which firing is being conducted. This flag will not be removed until all guns in the vehicle concerned have been cleared. Decision as to whether it will be necessary to have flank vehicles clear guns to permit adjacent vehicles to change targets will be made by the officer in charge of range practice.

The normal sequence for range practice is 1000-inch practice, known distance practice, field firing, and moving target practice. With trained troops, 2 or more phases of prescribed range practice may be conducted simultaneously. Each gunner completes preliminary practice firing of any one phase prior to firing the record practice table. Once record practice is begun on a particular table, such record practice is completed before preliminary practice firing under any other table is begun.

Procedure of practice firing is as follows: When directed to do so by coach or assistant scorer, the gunner fires his sighting shots. After this firing (and recording for future reference) the coach gives or relays the command, LOAD. The gunner loads, and aims and announces, 'Ready.' The coach or assistant then gives or relays the command, COMMENCE FIRING. Time starts with the second word of the command. The gunner commences firing and manipulates to distribute his fire as prescribed by the course being fired. The coach or scorer gives or relays the command CEASE FIRING so that the command of execution reaches the gunner as the time elapses. The gunner ceases firing and clears the gun without further command.

**Scoring.** (1) Any departure from these mandatory provisions disqualifies the individual affected for both qualification and pay unless after carefully considering facts in the case, the station commander rules that the discrepancy existed through no fault of the firer, in which case the individual may refire the course or such portion thereof as was affected by the ruling.

(2) Accidental discharges. After a man has taken his place at the gun all shots fired by him count as part of that exercise.

(3) Firing on wrong target. A gunner who fires on the wrong target receives credit only for hits recorded on his own target. He does not refire the exercise. The man whose target was erroneously fired on refires the exercise.

(4) Firing more ammunition than authorized. The shot holes in the target are counted. If the number of holes exceeds the number of rounds authorized for firing on the target, five points are deducted from the score for each shot hole in excess of the prescribed number of rounds fired. This rule applies to the scoring of all targets as prescribed under tables I to VIII, inclusive.

(5) Firing after command or signal to cease firing. Five points are deducted from firer's score for each round fired after the command CEASE FIRING. This rule applies to the scoring of all targets as prescribed under tables I to VIII, inclusive.

(6) During 1,000-inch firing, the name of the individual is placed on his target before he fires on it. No person is allowed to handle the target until after it is scored, except under direct supervision of the scoring officer or his assistant.

(7) In scoring targets where this provision is applicable, a bullet hole which touches a line is counted as a hit in the scoring space of the higher value.

(8) Ricochet hits are not counted in any firing.

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In known-distance firing the following additional rules apply:

(1) Pit details. Details for supervision, operation, marking, and scoring of targets during record practice consist of officers, noncommissioned officers, and privates, as follows:

(a) One commissioned officer assigned to each two targets. When it is impracticable to detail one officer to each two targets in the pit, an officer is assigned to supervise marking and scoring of not over four targets. In this case the pit scores are kept by the noncommissioned officer in charge of each target, who signs the score card. The officer takes up and signs each score card as soon as a complete score is recorded.

(b) One noncommissioned officer assigned to each target to direct and supervise the markers. This noncommissioned officer is selected from a company or other organization other than the one firing on the target which he supervises. If this is not possible, the officer assigned to the target exercises special care to insure correct scoring.

(c) One or two privates assigned to operate and mark each target. These privates may be selected from the organization firing on the target to which they are assigned.

(4) Use of telephones. (a) Telephones are used for official communication only.

(b) No one is allowed to ask over the telephone for information as to name or organization of any person firing on any particular target, and no information of this nature is transmitted.

(c) The following expressions are used over the telephone in the cases enumerated.

1. When a shot has been fired and the target has not been withdrawn from the firing position, "Mark No. ——."

2. When a shot has been fired and the target withdrawn from the firing position but not marked, "Disk No. ——."

3. When the target has been withdrawn from the firing position and marked, but the value of the shot has not been understood, "Redisk No. ——."

4. When the firing line is ready for rapid fire, "Ready on the firing line."

5. When a shot is marked on a target and the person assigned thereto has not fired, "Disregard the last shot on No. ——."

(5) Officers and men in the pit should not know who is firing on any particular target, and must not attempt to obtain this information; likewise, other officers and men must not transmit such information to personnel in the pit.

(6) Shelter for firer. Sheds or shelter for the firer are not permitted at any range.

(7) Misses. In all firing, before any miss is signaled, the target is withdrawn from the firing position and carefully examined by an officer, if an officer is on duty in the pit. Whenever the target is run up and a miss is signaled it is presumed that this examination has been made thoroughly. No challenge of the value signaled is entertained or resignaling of the shot allowed.

(8) If two shots strike a target at the same time or nearly the same time, both are signaled; if one of these shots was fired from the firing point assigned to that target, the hit having the higher of the two values signaled is entered on the soldier's score and no record is made of the other hit.

(9) If the target is withdrawn from the firing position just as the shot is fired, the scorer at that firing point at once reports the fact to the officer in charge of the scoring on that target. That officer investigates to see if the case is as represented. Being satisfied that such is the case, he directs that the shot be not considered and that the man fire another shot.

Computation of scores. (1) Table I (1,000-inch practice), (a) Sighting shots are definitely marked and identified, and are not considered in computing the record score.

(b) Two points are scored for each of the prescribed scoring spaces hit.

(c) Two additional points are scored for each hit in the black square within the scoring space and one additional point for each hit in the outer or white portion of the scoring space.

(d) Not more than two shot holes are counted in any one scoring space.

(e) The total possible score for any scoring space is 6 points; for the target, 36 points.

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(2) Tables II and IV (known-distance practice). (a) Known-distance practice is scored in the conventional manner, that is, by awarding a value of five for a bull's-eye and values of four, three, and two in successive scoring rings, respectively. A shot touching the line of each division is recorded as a hit in the higher division.

(b) Total possible scores are—
Caliber .50 firing, table II, 25 points.
Caliber .30 firing, table VI, 50 points

(3) Tables III and VII (field firing). (a) Field firing targets are scored giving a value of three points for each hit on the silhouette targets.

(b) Total possible scores are:
Caliber .50 firing, table III, 30 points,
Caliber .30 firing, table VII, 120 points.

(4) Tables IV and VIII (moving target practice). (a) Moving target firing is scored by giving a value of two points for each hit on the target. Hits on the sled, car, or other carrier employed are not to be counted.

(b) Total possible scores are:
Caliber .50 firing, table IV, 40 points,
Caliber .30 firing, table VII, 40 points.

(5) Table V (1,000-inch practice, caliber .30 machine gun). Scores are computed as in (1) above.

(6) Table IX. Total possible score is 80 points.

d. Score cards. A score card is kept for each individual firing. It shows only the scores made during record practice. Each entry is made in ink or indelible pencil and is authenticated by the officer making the entry. Erasures are not permitted. Alterations are made only by organization commanders or the officer who acted as scorer, and are authenticated by the officer making the correction. Date of completion of the preliminary gunner's test is entered in the space provided.

## MISCELLANEOUS

**Characteristics.** Machine guns are capable of delivering a great number of aimed shots within a short period of time. They are used primarily against enemy machine guns, armor-protected anti-mechanized weapons and armor protected vehicles. They are effective against any thin skinned vehicles and exposed crew-served weapons. Fire characteristics of this weapon are an extremely flat trajectory, high velocity, great accuracy, and rapidity of fire. Machine guns are easy to put into action and have mobility consistent with present modes of transportation.

The number of shots to be used in a burst fired automatically with a single pressure of the trigger is affected by such general factors as nature of target, steadiness of mount, opportunity to insert new belts, ammunition supply, and condition of gun. Large bursts are ineffective due to effects of vibration, smoke, flash, and dust. Use of rapidly aimed successive single shot fire is suited to the air cooled machine guns. The maximum usable rate of single shot fire is 75 rounds per min. per 300 rounds. The water cooled machine guns are especially designed for long sustained bursts of fire, as used against low flying aircraft. Rapid fire should be consistent with constant aiming. A prolonged continuation of rapid rate causes overheating of the barrel of air cooled guns.

**Ammunition.** Ammunition is covered in Chapter 3, Volume III. Ball ammunition is used as a substitute for armor piercing ammunition for training purposes because of the cost. The average loading of tracer should be 1 in 4 or 1 in 5 shots. The recommended loading of machine guns for A.A. firing is 1 tracer, 2 armor piercing and 2 incendiary.

**Antiaircraft Firing.** Antiaircraft firing is usually done in long bursts of fire of 10-25 shots. The gunner seldom aims with the sights but rather aims from an estimation of tracers. There are two methods of observing tracers. The white method observes the flight of the tracers from near the gun to the vicinity of the target and estimation is made of the strike of the bullets. The red method observes the tracers in the vicinity and the strike of the bullets on the target. A general rule in observing tracers in antiaircraft firing is that they should lead the target sufficiently so that the tracers disappear at the front portion of the

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**Figure 163. Quick Opening Embrasure, on AA Emplacement of .50 Cal. MG Open.**

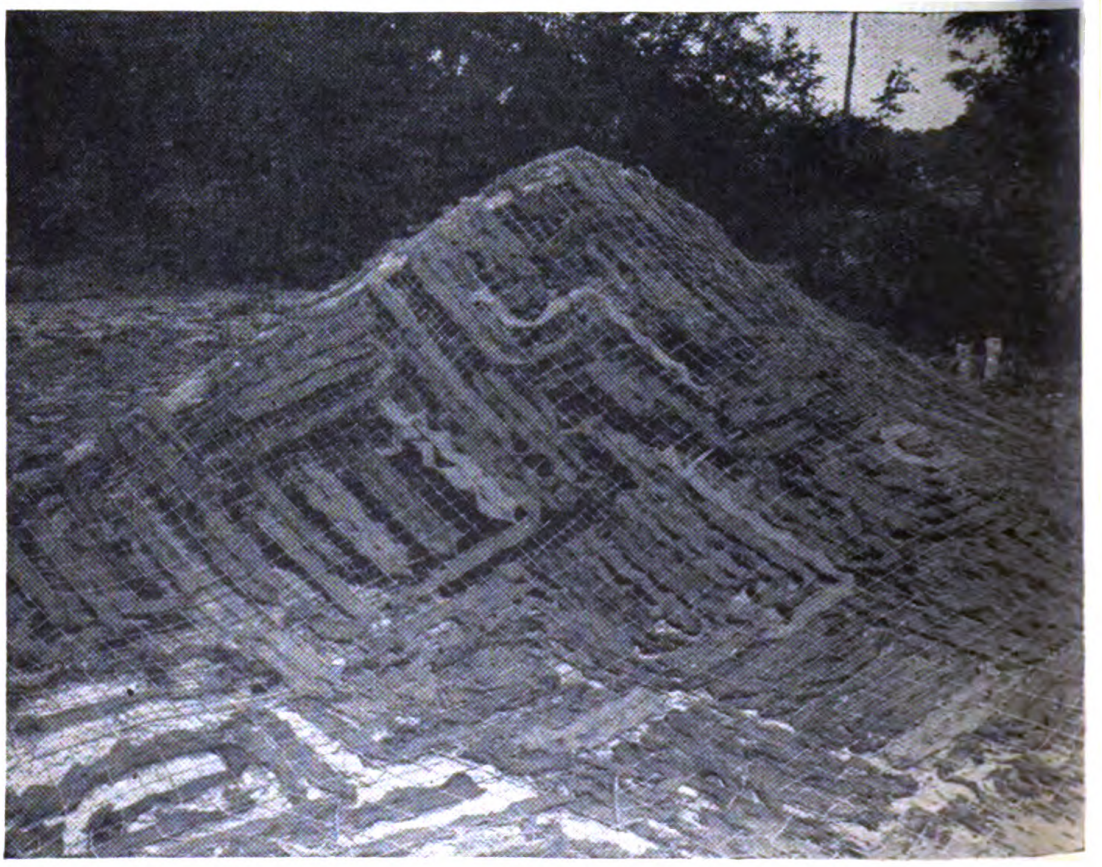


**Figure 164. Quick Opening Embrasure, Camouflage for AA MG Emplacement.**

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target. Don't let the tracers trail or enter the rear of the AA target. The plane should appear to be flying into the tracers.

Six general statements in regard to establishing machine gun security outposts are

(1) Pick an area in the direction from which the enemy is likely to try an approach, the area requiring the greatest amount of fire power.

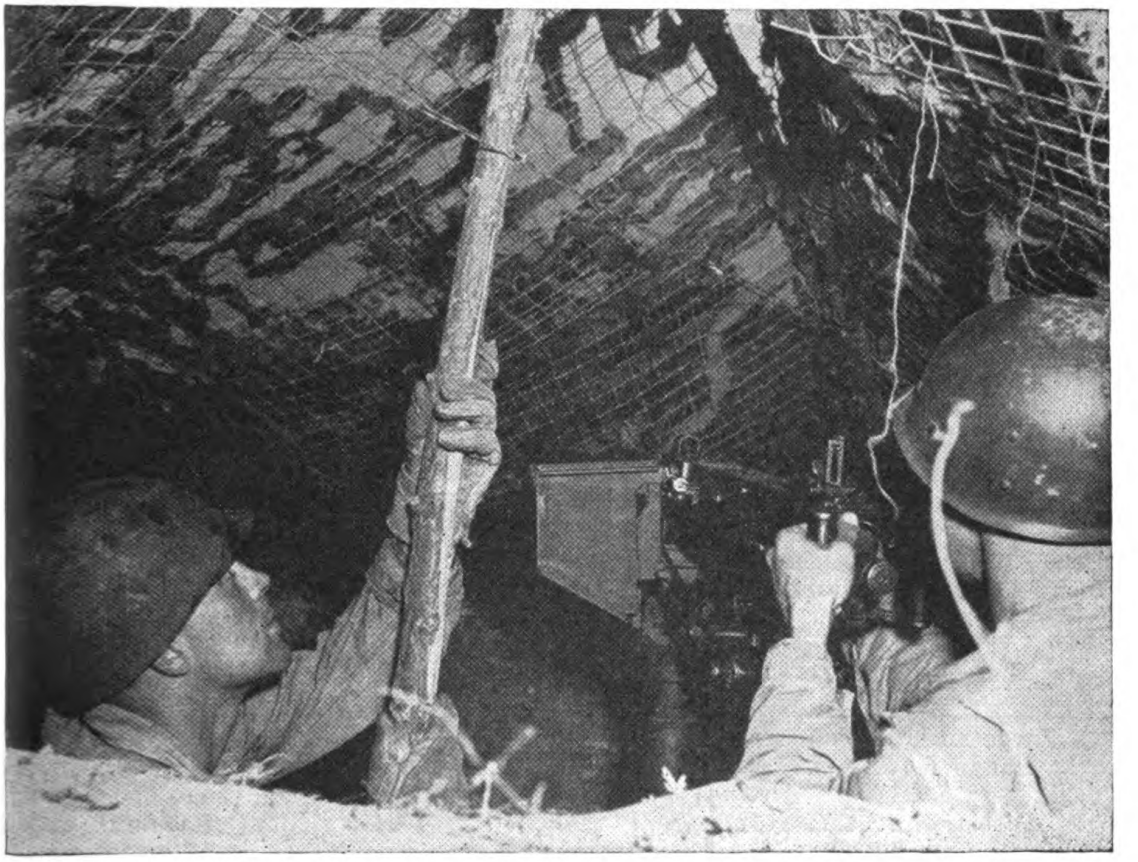


**Figure 165. Interior of Quick Opening Camouflage Embrasure.**

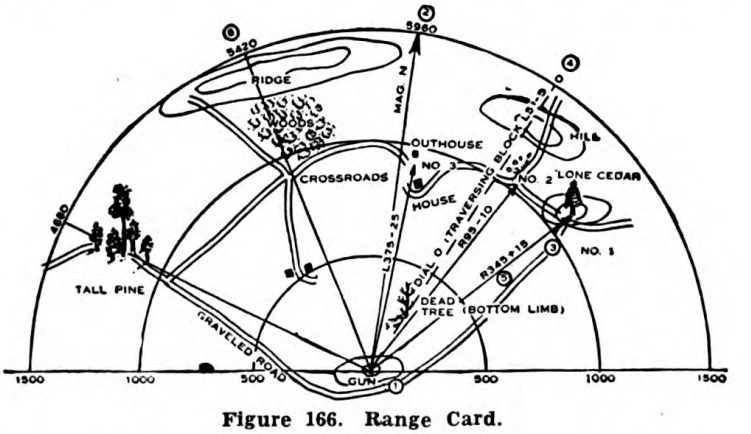



**Figure 166. Range Card.**

**(2)** Pick a spot for the machine gun which has a field of fire. If necessary clear a field of fire.

**(3)** See that you pick the best place, bearing in mind cover and concealment. Can the position be camouflaged? Note the illustration of the quick opening, igloo-type camouflaged embrasure over the dug in A.A. MG emplacement figures.

**(4)** Pick a gun position that has a route of withdrawal.

**(5)** Locate supporting and covering fires for the position.

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(6) Make up a range card for the gun. See figure 166.

The importance of vehicular machine gun mounts in recovery, reconnaissance, battlefield evacuation, and patrol work is realized through experience. Machine guns can, if manned correctly, strike quickly and accurately, giving A.A. protection and covering withdrawals against enemy ground force attack. Typical truck mount in figure 167 shown is one type used by ordnance units successfully.



**Figure 167. .50 Cal. MG on M-32 Truck Mount for Convoy Defense.**

**Fire Orders.** The necessary elements of target designation, fire distribution, and fire control, where combined in the order named, constitute fire orders. Reference in any fire order is made only to the essential basic elements. The sequence of elements used will follow that given in the table below. Fire orders issued prior to engagement will follow frequently the more detailed, complete form; those issued during action must be abbreviated and terse.

| Element and part | Examples |
|---|---|
| I. Target designation: | |
| Range ..... | Range 400; No. 1 (vehicle), range 300; bow (turret) gun(s), range 500; first platoon, range 600. |
| Direction ..... | Front; right (left) front; right (left) flank; right (left) rear; rear. |
| Description ..... | Antitank gun; machine gun; trench; tank (combat, armored, scout car) that (such-and-such) hill (column, area); reference, lone pine, right (left, up, down) 50 yards (mils) corner of trench, target machine gun. |
| II. Fire distribution: | |
| Subdivision of target .. | Bow (turret) gun(s), traverse right (left); bow (turret) gun(s) search up (down); No. 4 (vehicle), right fifth (such-and-such); No. 5 (vehicle), left (such-and-such) lane (sector); first platoon (objective, sector, zone), right of that trail (such-and-such). |
| Type of distribution .. | Fixed (concentrated, point); located targets; traverse; sweeping traverse; grazing traverse; search; sweeping search; traverse and search; sweeping traverse and search. |
| III. Fire control: | |
| Rate of fire ..... | Rapid; medium; slow; single-shot (slow, medium). |
| Kind of ammunition .. | Ball; tracer; ball and tracer; armor piercing; armor piercing and tracer. |
| Time of opening fire .. | Commence firing; upon signal (so-and-so); on that (such-and-such) line; on opportunity. |
| Time to cease firing ... | Cease firing; upon signal (so-and-so); (on loss of opportunity) (on that line) (at such-and-such time) (on leaving objective), cease firing. |

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## SUB-MACHINE GUN MARKSMANSHIP

The purpose of this article is to give the Ordnance Officer the necessary information with which to teach the troops under his command to fire the submachine guns. The principles of marksmanship instruction with any of the submachine guns are much the same and therefore the patterns to be followed in the instruction of marksmanship with any submachine guns are almost identical.

There will be no mention made herein as to the modifications of the weapons concerned unless that change affects the methods of instruction. Any information as to field stripping, nomenclature, stoppages, care and cleaning, etc., will be found in the chapter dealing with small arms.

This article will cover the popular 'Tommy' guns (Models 1928A1 and 1928M1), the M3 submachine gun, and the Harrington and Richardson 'Reising' submachine gun. Although the Reising is a Marine Corps weapon, it is believed that it should be mentioned since certain Army units have been equipped with it in the past, and probably will be equipped with it in the future.

Normally in all marksmanship instruction, the first thing to cover is the method of taking the correct sight picture and the coverage of the sighting and aiming exercises. However, it is assumed that all personnel that are armed with the submachine guns have fired the rifle or carbine, and will not, therefore, be required to learn the sight picture again. The sight picture for the submachine guns may not be exactly the same as that for the rifles, pistols, etc., as most troops equipped with the submachine guns do not take the '6 o'clock hold' but bring their sights to bear 'on' the target; that is, the front sight will *partially cover* the target instead of being held just underneath it. Of course, this depends upon the shooter, and will not hold true in all cases. Since the weapon is one that will be used only for fast, shortrange shooting, the sight picture is not of as great importance as with the rifle. Actually, the weapon will very often be fired from the hip or chest, and no sight picture will be taken at all. As long as the sights fall somewhere on the target, the picture is satisfactory, and a 'hit' will result.

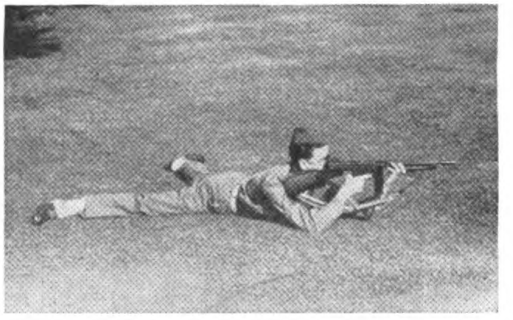


**Figure 168. Tommy Guns; Prone Position.**

Some models of submachine guns in use by our forces have adjustable sights, graduated up to 600 yards. However, the accuracy of the cal .45 ball cartridge at this range is so low that it is almost a waste of time to put such sights on the weapon. The later models of the 'Tommy Gun' have a fixed sight. The Model 1928A1 has a leaf-type sight similar to the one found on the old Model 1903 rifle, which is graduated to 600 yards, but the newer Model 1928M1 has fixed sights. The M3 also has fixed sights, but the Reising has adjustable sights. The Reising is not a new weapon and a great many have been modified and the adjustable sight replaced by a fixed sight.

Since some of the older models of these weapons are still in use, it would be wise to cover their sights here. As stated before, the Model 1928A1 has a leaf type sight which is graduated up to 600 yards, and which is adjustable for windage. The newer Model 1928M1 has only fixed sights. The M3 has fixed sights. The Reising has the type of sight found on most inexpensive cal .22 rifles; the rear sight is shaped like the letter 'V' and has an elevating slide under the sight itself which raises it for ranges of 50, 100, 200, and 300 yards. The front sight is adjustable for windage.

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It will be found that the most satisfactory results can be obtained from the adjustable sight weapons if the sights are set to hit on 'point of aim' at some definite range, and then left alone. If the shot is shorter, hold slightly under the point to be hit; if the range is greater, then hold slightly over the aiming point. Allow for windage by taking 'Kentucky Windage.' In other words, the man armed with the weapon knows that his weapon will hit right on the point of aim at 100 yards. If he has to make a shot at 35 yards, he will hold under the point to be hit. If the shot is 200 yards away, then he knows that he will have to hold over. There is not usually sufficient time in combat for making sight adjustments. Set them, leave them alone, and shoot 'Kentucky style' for best results.



**Figure 169. Tommy Gun; Kneeling Position.**

Whenever the submachine guns are fired for more than one shot at a time, the sight picture is useless. After the first shot has been fired, the weapon will climb and move to one side, and the smoke of the first shot will obscure the target. We can see, therefore, that the sight picture is of little value after the first shot. In addition to this factor, the shooter himself will close his eyes at the sound of the first shot, and will not even be able to see the target for the second shot (if he is firing full automatic fire).



**Figure 170. Tommy Gun; Standing Position.**

Therefore, we can dispense with triangulation exercises altogether. They are of little use to the submachine gunner.

Also, the adjustment of the sling can be dispensed with. The sling provided with these weapons is more for carrying the weapon on the shoulder than for steadying the weapon in the hands of the shooter. With the exception of long range shots, the sling will probably not be used at all.

There are a few minor differences in the shooting positions with the submachine guns and with the rifle. The prone position is identical. In the sitting position, it

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must be remembered that the weight of the body must be thrown as far forward as possible to attempt to overcome the recoil of the weapon. Actually, there is very little recoil with any of the submachine guns. The major trouble is to prevent the weapon from 'climbing' in the hands of the shooter. For this reason, throw the weight of the body forward, pulling downward on the forestock. With the rifle, the left arm acts as a support and attempts to hold the weapon *up*. With the submachine guns, the left arm attempts to hold the weapon *down*. This is an important factor in firing bursts; for single shots, it doesn't always apply.

The sitting position is the poorest position in which to fire the weapon. The kneeling position is much better since the weight of the body can be thrown farther forward in this position than in the sitting position.

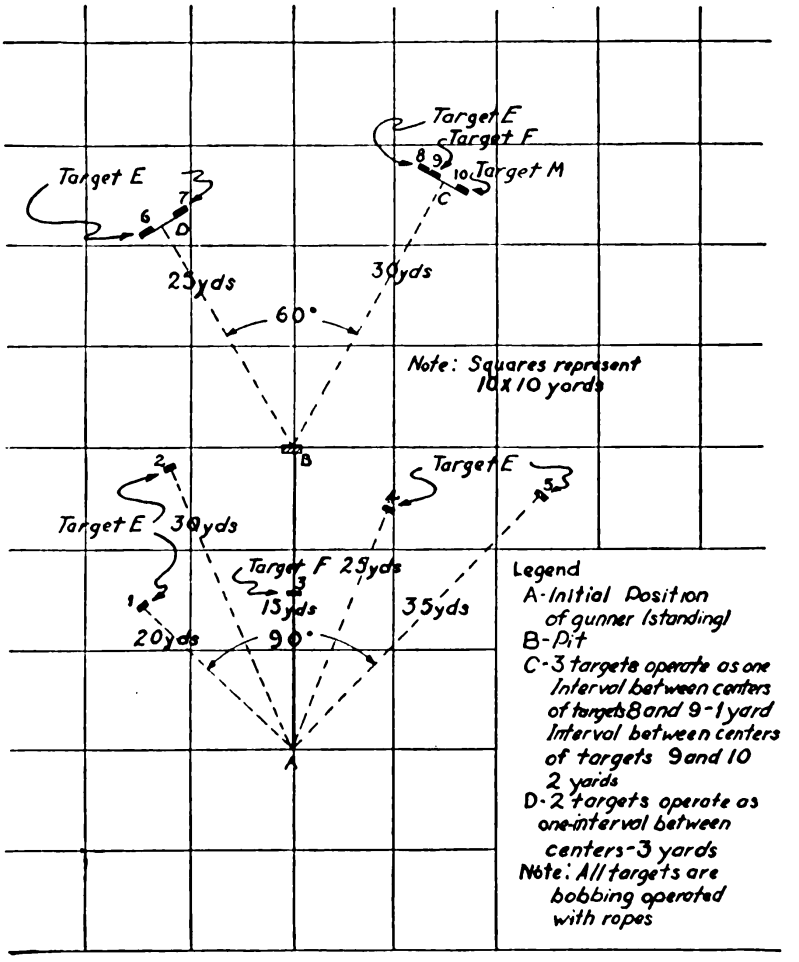



**Figure 171. Dismounted Practice Course.**

In 'close in' fighting, the position usually used will be either the hip position or the chest position. That is, the weapon will either be held against the side of the hip and fired in the direction of the target, there being no attempt to take any aim, or the weapon will be fired from chest level with the stock falling under the armpit. When these positions are used, it will be noticed that there is less tendency of the muzzle to climb, however, they require more practice for accurate shooting. It will be found necessary to give the student a great deal of practice before accurate shooting can be done from either of these two positions. Naturally, these positions are the fastest to get into.

The student should be taught to always drop into a crouch when firing in either of these positions in order to offer as small a target as possible to the enemy, and to steady the body against the tendency of the weapon to climb. Another position is the 'belly hold,' where the butt of the stock is put into the pelvis

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region. In this position, the eyes of the shooter are directly *above* the weapon, and the direction of the shots can be controlled more easily as far as lateral direction is concerned.

The standing, or 'off hand' position, is the most unsteady of all positions. Here, the weapon is held with the stock against the shoulder as would be the stock of a rifle in the standing position. Notice that the body is leaning forward and very slightly crouched to overcome 'climb.'

Notice that in the standing position, the body practically faces the target. The reason for this is to enable the shooter to pivot on the ball of either foot and fire at targets to either side of him without moving both feet. It is very much like the position of 'on guard' with the bayonet. The feet should always be moved; never twist the body. By moving the feet around and pivoting on the ball of one foot, the body is always perfectly balanced. If the body were twisted at the hips, the body would be off balance when firing 90 degrees from the original front. When setting up a course to be fired by students, targets should be placed 90 degrees from each other to bring out the importance of this point.

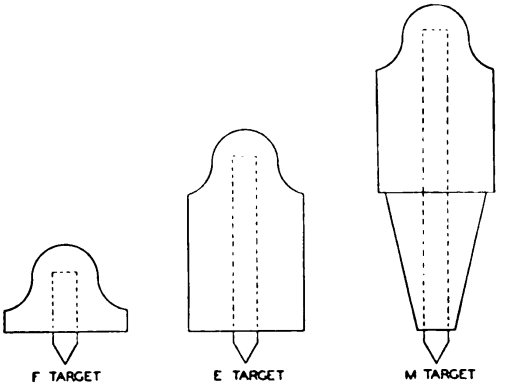



**Figure 172. Targets.**

After positions and fast shooting have been taken up, the course with the submachine guns has been fairly well covered. The course to be fired is one set down in the field manual for the submachine guns (FM 23-40). However, this course can be elaborated upon a great deal. If space and time are available, a more practical course can be built than the one shown in figure 171. Targets should drop from trees, spring up out of the ground, spring from behind trees, pop up behind the shooter—all at short and long ranges. The more targets, the better. The more surprises, the better.

Before covering the course, a mention of the value of the 'Cutt's Compensator' would be of value to the reader. It will be noticed that the Model 1928A1 has the Cutt's compensator, but that the Model 1928M1 does not. Also the Reising, which, as stated previously, is an older model gun has the compensator. The M3 does not. The principle behind the compensator is this: When the bullet leaves the muzzle it is followed by the expanding powder gases. The Cutt's compensator is a tube like arrangement on the muzzle which has slots cut in the top. When the gases emerge from the barrel, they will travel upward through these slots, and tend to force the muzzle downward. It works on the same principle as the muzzle brake on certain German field guns. The climb of the muzzle is considerably reduced by the compensator, but it was found, however, that the value of the item was negligible in comparison with its price. Therefore, the later model submachine guns are not equipped with a compensator. Quite a few of the inexpensive M3 submachine guns could be built for the price of one Cutt's compensator. It might be added that since the powder gases were directed upward as soon as they emerged from the muzzle, these gases further restricted the vision of the shooter; in a sense, he had to wait for the smoke to clear before making his next shot. This was another bad feature of the compensator, but only a minor one. The major one was its expense.

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## COURSES TO BE FIRED

The following table prescribes firing of instruction practice. The table is fired *three times* for instruction and once for record, or four times altogether.

*Phase 'A'*
Single Action Fire.
Standing or 'Off Hand' position.
15 to 35 yards range.
Each target exposed to the shooter for three (3) seconds.
10 Rounds—2 for each of the five targets in Phase 'A.'

The targets are invisible to the shooter as he moves to the firing line. After getting into position the targets will be exposed for three seconds. He will fire two shots at each target, single action (one shot at a time). The purpose of not firing 'bursts' is to teach trigger control.

*Phase 'B'*
Automatic Fire, Bursts of Three shots.
Standing, kneeling, or any position other than prone.
25 to 30 yards range.
Each target exposed to the shooter for *five* seconds.
15 rounds; 3 rounds on each target.

Here again, it is important to fire only the required number of shots at each target. If too many shots are fired at one target, the shooter looses credit for any shot over three. It must be understood that three silhouettes are mounted on one framework for Phase 'B.' He will fire three shots into each target, in bursts of three, a total of nine shots. On another framework, only two targets appear. He will fire three shots at each silhouette—a total of six shots. The grand total is 15 shots.

Although it is stated in the manual that the targets will be mounted in the aforesaid groups (one with three silhouette targets and one with two silhouette targets), it is not necessarily the most practical method of construction. Five single silhouette targets popping up at five different places would give the shooter more practice than three silhouettes all in one place. In the event that the silhouettes are mounted singly, allow only three seconds exposure per target. For two silhouettes mounted together, allow four seconds; for three targets together, allow five seconds.

The shooter will fire Phase 'A' by firing ten rounds, two to each silhouette. He will then proceed to Phase 'B' and fire 15 rounds, three shots to each silhouette target. The total number of rounds for both phases is 25.

## SCORING

The targets should be numbered from 1 to 10. For each hit on a silhouette target the shooter gets two points and he gets five points for hitting the target at all. In other words, if the shooter hit target No. 1 only one time he would get 7 points; 5 points for hitting the target at all, and two points for each bullet hole. In Phase 'A,' where two shots are fired at each silhouette target, the total possible score for each silhouette is 9 points; 5 points for hitting it, and two points for each of the two bullet holes in the target. Since there are five silhouette targets in Phase 'A,' the total possible score for Phase 'A' would be 5 times 9 or 45 points.

In Phase 'B,' three shots are fired at each silhouette target. The gunner gets five points for hitting the target at all, and two points for each bullet hole. Thus, if he hits the silhouette target all three times, he would get a total of 11 points on that target. If he only hit it two times, he would get 9 points. Thus, the total possible score for Phase 'B' would be 5 times 11 or 55 points. The total for Phase 'A' and Phase 'B' is 100 points. There are five silhouette targets on Phase 'A' and five silhouette targets on Phase 'B.' There are ten targets in all.

If more targets are desired, double the number of targets and you will have a possible score of 200. Divide the score by 2 to get the qualifying score. If the target number is doubled, the same number of targets added to Phase 'A' must be added to Phase 'B' in order to even up the scoring.

If the shooter hits the target more times than required, he loses the value

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of the extra shot. In Phase 'A,' where two shots are to be fired at each silhouette target, the shooter does not get any credit for the third hit. As the maximum possible score for any one target in 'A' Phase is 9 points and no more, he would be credited with one miss of value zero.

The ratings are; Expert, First Class Gunner, and Second Class Gunner.

## U. S. PISTOLS, CALIBER .45 MODEL, 1911 AND 1911A1 MARKSMANSHIP

All persons responsible for the instruction in pistol marksmanship will familiarize themselves with the contents of FM 23-35, and should themselves have sufficient knowledge of the weapon and the course to be fired to instruct effectively.

The manual (FM 23-35) states that the maximum range of the .45 cartridge is about 1600 yards, with the muzzle elevated to 30 degrees. It also states that the accuracy of the weapon for firing on targets is about 75 yards. This statement depends on the ability of the shooter, not the weapon.

For every shot on the range, there should be 15 shots dry fired indoors. There never will be anything to take the place of dry firing. It is by far the most important part of learning. Trigger squeeze is the most important part of actual shooting, but dry firing is the important part of learning to shoot. Take the crack pistol shot, analyze him, and find out what makes his shooting good. It will almost always be the same things.

| | |
|---|---|
| Trigger squeeze | 60 % |
| Having the correct sight picture for each shot | 15 % |
| Correct position of the pistol in the hand, with trigger finger in the same place each time | 15 % |
| Correct breathing | 5 % |
| Correct timing of shots | 2½% |
| Position of body | 2½% |
| TOTAL—A good pistol shot | 100 % |

The student should know his weapon: how to field strip it, and how to clean it properly after it has been fired.

**Sight Picture.** Without the correct sight picture in shooting any hand or shoulder weapon, all the smooth, easy trigger squeeze in the world will not make the student a good pistol shot. There is only one correct sight picture. This is known as the "dead six o'clock hold". The front sight is centered in the rear sight so that an equal amount of space shows to either side of the front sight as it is seen through the rear sight. The top of the front sight is even with the top of the rear sight, and the bull's eye rests on top of the front sight as a tennis ball would rest on a thin post.

**Sighting and Aiming Exercises.** These exercises are very boring even at their best. But we cannot teach the student to shoot without first teaching him the correct sight picture. Teach him over and over again until he can take the correct sight picture subconsciously. The regular GI sighting bar is one of the best devices with which to teach sighting and aiming exercises. It is easy to make, easy to use. and cannot be beaten when teaching sighting and aiming.

Every time that the student takes up the pistol to aim at the target or to squeeze off a dry shot at a knot hole in the wall, remind him of the correct sight picture.

**Position of the Body.** (Figure 173) In firing the pistol the position of the body is very important. The stance should be one that affords as much comfort and relaxation to the shooter as possible. In order to attain this position, stand with the body between 60 and 90 degrees from the target; extend the shooting arm, holding the pistol towards the target. Look through the sights to see if they are on the target. If they are off to one side, shift the entire body by moving the feet. Do not twist the body at the hips. When the arm and pistol are pointed at the target, the sights should fall very close to the bull's-eye. Each time the weapon recoils, the weapon will naturally return to this point. Otherwise, the arm and pistol will have to be forced with muscular effort. The student will find that this method will save time. At all times the other hand should be stationary, either in the hip pocket, on the hip, or behind the back in a natural relaxed position.

If the other hand and arm is allowed to swing freely it will cause the entire

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upper body to swing also. It does not matter where the hand is placed as long as it is stationary.

When firing slow fire, breathing is much the same as in firing the rifle. Either take a deep breath and let out half, holding the remainder in the throat, or let out all of the breath while aiming and squeezing. Generally speaking, the method of letting out all of the breath has been proved to be the better, but either one is quite satisfactory. Let the individual decide for himself which he cares to use.

In rapid fire, there should never be any breathing during the entire phase of firing the 5-shot strings. This must be stressed to all students or they will breath between shots or during shots.

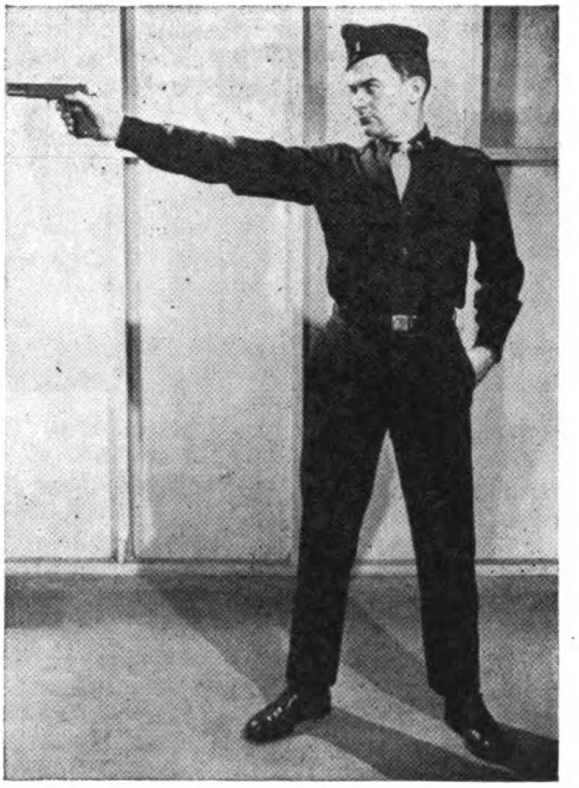


**Figure 173. Position of the Body.**

**The Shooting Arm.** Some inexperienced shooters tend to bend the arm at the elbow when firing the pistol. Do not allow the student to do this as long as he is physically able to hold his arm straight. When the elbow is bent, only the muscle in the upper arm supports the weapon. This will very soon tire. When the arm is straight, but not locked at the elbow, both the lower arm and upper arm muscles support the weapon, in addition to the shoulder and back muscles.

Pistol shooting is an art and must be studied as such. You cannot learn to shoot the pistol overnight. You cannot learn to shoot it by yourself; there must be some one standing beside you to tell you your faults. This is the job of the coach and instructor. Whether or not a man becomes a good pistol shot is basically up to the ability of his instructor.

**Position of the Pistol in the Hand.** (Figure 174) Whether the student is right-handed or left-handed, the same rules will apply. The weapon should always be placed in the shooting hand by the other hand. The weapon should be forced into the hand so that the crotch between the thumb and the forefinger will fully depress the grip safety. Now the piece is resting in the hand, the weight being held by equal pressure on each side of the frame by the side of the thumb and the side of the index finger. At this point, the other fingers are all straight, pointing in a straight line parallel to the bore. The instructor should be able to look down from above on the pistol being held in the hand of the student and see the thumb, pistol, and the four fingers all pointing in the same direction; they should make

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*three parallel lines.* The instructor must bring out this point. The hand, fingers, thumb, pistol. wrist, and lower arm should be all one long straight line.

Now, tell the student to place the three fingers lightly around the grip, with the second finger touching the bottom of the trigger guard. There is no real grip to these three fingers. They are merely placed around the grip of the receiver to retain the main spring housing against the base of the palm of the shooting hand. There should never be any pressure applied with these three fingers to the grip of the receiver. Most inexperienced shooters get a "death grip" on the weapon with these three fingers, and soon the entire hand and pistol begin to tremble from muscular fatigue. Test out each student's hand by bending back one of these three fingers to see if there is any pressure being applied. If the student tends to get this "death grip" on the weapon, have him fire the pistol with these three fingers away from the grip altogether. Whenever the instructor sees the student's hand trembling from this "death grip," this will be the only way that it can be overcome.

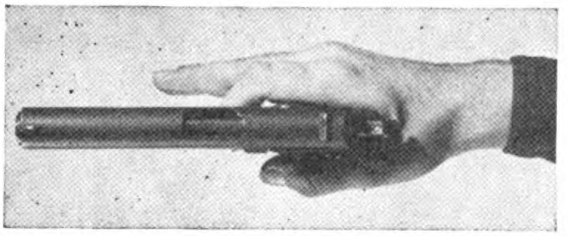


**Figure 174A.**



**Figure 174B. Holding the Pistol.**

The position of the trigger finger on the trigger is of vast importance. The trigger should be pressed with the ball of the trigger finger, or the crotch of the first joint. The student should never be allowed to place his finger so far through the trigger guard that the first joint is beyond the center of the trigger. This part of the trigger finger must be perpendicular to the bore so that the pressure will be directly to the rear and not off to one side.

Pressure of the trigger finger which is too far through the trigger guard will force the pistol to jump to one side just after the hammer falls but before the bullet leaves the muzzle. If a right-handed person has his trigger finger too far through the trigger guard, the weapon will have the tendency to jump to the right after the hammer falls. If not enough trigger finger is applied, then the weapon will have the tendency to jump to the left just after the hammer falls. Conversely these rules are true for the left-handed pistol shooter. In all cases, the pressure must be directly to the rear.

An inexperienced man cannot understand why the shot does not hit the bull's eye when he is sure he pulled the trigger as the sights were directly in line. When he pulled the trigger the weapon moved in his hand. By the time the bullet left the muzzle the weapon was off the bull's-eye. From the release of the hammer to the exit of the bullet from the muzzle, there is a definite time interval. If the pistol is allowed to move during this time interval, the shot will not go where it is intended to go, but will go where the barrel was pointing at the time that the bullet left the muzzle. Thus, we arrive at one of the 'tricks' to pistol shooting—'Follow through.'

Merely having a smooth squeeze on the trigger is not enough. The student must utilize this new factor, 'follow through' or 'trigger control.' Since there is no way that we can ever eliminate this time interval, we must develop trigger control in order to fire the pistol accurately.

In dry firing and firing with dummy rounds, the instructor can easily detect any student who is failing to follow through with each shot. If the weapon moves even a fraction of an inch after the hammer falls, the student has not yet mastered this factor. He must be made to follow through on every shot. Failure to follow through can make the student miss the target by as much as three feet.

**Sighting Exercises With the Pistol.** Now that we have taken up sighting and aiming exercises and the position of the pistol in the hand, we can combine the two into sighting exercises with the pistol. If they are available, tack as many

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1,000-inch targets on the walls of the classroom as are needed for the number of students being instructed. If no such targets are available, they may be made up very easily of a bull's-eye about the size of a fifty-cent piece, at a range about 10 yards. In order to accustom the arm to hold up this weight, and hold the pistol's sights on the bull as steadily as possible, the arm must be 'taught.' If there is plenty of time available, the following is a method of 'teaching' the arm muscles. Take an issue canteen, tie a length of strong string to the chain, and hang the canteen to the muzzle end of the slide. Have the student practice holding the pistol and the canteen out, sighting on the target for about one minute intervals. After sighting on the target for one minute, lower the arm and rest for several minutes. Do this for about half an hour each day. As the arm gets adjusted to holding up this weight, add water to the canteen. After about two weeks of this the student will be able to hold up the pistol (39 ounces) plus the weight of the canteen (about 30 more ounces) with ease. When the canteen is removed, the student will find it quite easy to hold the pistol's sights on the bull for unusually long periods of time.

**Trigger Squeeze.** Now the student must combine all that he has learned so far and put it into effect. While he is learning to hold on the target in his sighting exercises with the pistol, he can be practicing trigger squeeze. As stated before, trigger squeeze is the most important part of pistol shooting. It is important with the rifle too, but is *more* important with the pistol. In pistol shooting, the trigger squeeze must be so gradual, so steady, and so smooth that the shooter DOES NOT KNOW WHEN THE HAMMER IS GOING TO FALL. If he knows when the hammer will fall and when the weapon will fire, he will blink his eyes and jerk his hand in an effort to overcome the recoil of the weapon. This is known as 'flinching' and is the hardest of all faults to correct. The instructor must keep reminding the student to squeeze the trigger gradually, keep his eyes on the target as seen through the sights, keep the correct sight picture, and follow through. If all of these things are done correctly, the student can tell the instructor where his shot should have hit the target. If the sights of the pistol were to the right of the bull at the time that the student heard the hammer fall, then the student should call his shot, "three o'clock". Each student should call every shot singly, whether he is dry firing indoors or actually firing on the range.

When on the range, if the student calls his shot at three o'clock, and the shot hits the target a good distance from that point, either the student is flinching (closing his eyes so that he cannot see where his sights were when he pulled the trigger) or he is not following through. If it is found that the student is flinching, he will require individual attention. (Note: A right handed flincher always will fire a string of shots at seven o'clock on the target; a left-handed flincher at five o'clock. Usually these shots are from one foot to three feet from the center of the bull.) The student must be 'talked' by the instructor into squeezing the trigger. The instructor must stand beside the shooter and watch his eyes and his pistol. If the eyes blink before the gun fires, or the pistol moves in a direction other than normal, the student is either flinching or not following through. This can best be found on the range in actual firing. If the instructor believes a student to be flinching or not to be following through, the instructor must then stand on the same side as the shooting hand and watch his eyes. If the instructor sees the student's eye close, the student is flinching; he is closing his eyes just before the weapon discharges. If the student closes his eyes when his ears heard the weapon go off, the instructor would not see him since the instructor would also close his eyes at the same time.

There are only two methods of proving to the student that he is flinching. One, by the use of dummy rounds put into the clip by the instructor without the student's knowledge; the other, single loading of the weapon by the instructor. In the use of dummy rounds, the instructor should load the clip himself and hand it to the student. When the student pulls the trigger on this dummy round, he flinches, and jerks his arms in an effort to overcome recoil. This will soon prove to him that he is flinching, and he will make an effort to stop doing so. In the event that dummy rounds are not available, the instructor can load the weapon himself and hand it to the student locked. The first time the instructor will load a live round into the chamber, and the student will fire it. The next time he does not load anything into the chamber, but the student THINKS that

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there is a live round in the chamber. An hour of this will stop most students from flinching, but might do so only temporarily. If so repeat the process; flinching must be corrected early during instruction.

In dry firing with the pistol, the student should be able to bring his weapon down on the target, line up his sights, squeeze the trigger and follow through. If this is properly done the weapon will not move a fraction of an inch within the hand.

To bring the weapon down on the target means that the weapon starts at the position of raise pistol, moves to the vertical, and then starts a slow descent, describing an arc in the direction of the target. As the weapon nears the target, the arm is slowed down so that the weapon will come to a slow halt when the sights have crossed the bull and the top of the front sight has reached the bottom of the bull. As the sights cross the bull, the trigger squeeze has begun. The reason behind the vertical and arc method is this: As the arm is being extended upward and as it is moving in its arc toward the target, all of the muscles in the arm are completely relaxed. Tension is not brought on the arm muscles until the weapon has been brought to its slow halt as the sights reach the bottom of the bull. As the arm is moving in the arc, the slack of the trigger is taken up. Trigger squeeze begins at the bottom of the arc.

After the arm is brought to a slow halt, there should *NEVER BE MORE THAN A FIVE-SECOND DELAY BEFORE THE WEAPON IS DISCHARGED.* After bringing the weapon and the arm to a slow halt as the sights cross the bull, the arm and pistol are fairly steady for about three to five seconds. After five seconds, the arm will begin to waver and the weapon will begin to quiver; arm fatigue has begun and it is too late to fire. In this event, let the weapon return to raise pistol; or better still, lay the weapon down on the table, locked, until the arm is again in condition to take it up and to continue shooting. Inexperienced shooters always try to get as many shots off as they possibly can before their shooting arm tires. This is wrong. In slow fire range procedures, there should be plenty of time allowed for every shot so that the shooter is not hurried. Ten shots in twenty minutes is certainly not too slow. There should be a very definite rest between each and every shot.

**Rapid Fire Procedures.** In rapid fire procedure, there is no time to rest between shots. The shooter must get off five shots against the stop watch. At 15 yards he must fire five shots in 11 seconds; at 25 yards he must fire five shots in 15 seconds. In firing at the bobbing targets (timed fire), he must get off a shot approximately every 4 seconds. There is no time for rest between shots here. Rapid fire and timed fire can only be taught after slow fire. The student must have developed a slow, smooth trigger squeeze before he can speed it up. The trigger squeeze in rapid fire is no less smooth or gradual; it is merely more rapid.

Since the pistol is a short range weapon and is usually used at a moment's notice, a fast, smooth repeating trigger squeeze must be developed.

Have a length of string about five feet in length for each student. At one end of this string is tied a slip knot; at the other end, a large loop. The slip knot is slipped on the hammer of the pistol and tightened. The other end of the string is held in the other hand. The weapon is pointed at the target, the string is jerked, and the weapon is cocked. After each dry shot, the string is jerked again to recock the weapon for another dry run shot. A jerk will fully cock the weapon and at the same time will pull the sight off the target for enough to simulate the normal recoil of the weapon. This will teach the student to bring the weapon back to the target quickly after each shot. The hand that pulls the string should be held below the belt-line.

There are a few rules and regulations governing rapid fire procedure on the range which should be taught to the class at this time.

The shooters will advance to the firing point with all weapons locked open and with the ammunition-filled clips held in the other hand. The clips will be placed upon the shooting stands. Each student will take up his individual firing position. The instructor will then call out, 'With ball ammunition, LOAD AND LOCK.' (In the classroom, during dry firing practice, the command will be, 'SIMULATE LOAD AND LOCK.') Then the instructor will command 'Ready

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on the right, ready on the left.' If all students are ready, they will make no sign. However, if any one is having difficulty loading, he will raise his hand in signal to the range officer, who will send an assistant. When all the students are ready, the instructor will command, 'Ready on the firing line.' At this time all students will unlock their weapons and then extend their pistols in the direction of the target. Five seconds after the command, 'Ready on the firing line,' the command,, 'Commence Firing,' will be given. After the expiration of the time limit, the command, 'Cease Firing,' will be given. The instructor must be sure that there is always this five-second delay between the two commands, 'Ready on the Firing Line,' and, 'Commence Firing.' This gives the student time to extend his arm and sight on the target for the first shot. On the command, 'Commence Firing,' the first shot should be fired. There should not be more than a one-second delay until the first shot is fired. This allows a maximum amount of time for the other four shots. There will be no shots fired after the word *firing* of the command, 'Cease Firing.' Any person who fires a shot after this command will be disqualified. Also, no shots will be fired before the command, 'Commence Firing,' has been given. Any person who fires a shot before the command will also be disqualified.

For each dry run of rapid fire procedure these commands must be used in their correct order with necessary time intervals. The instructor must see to it that all students get into the habit of locking the weapon each time and unlocking the weapon on the command, 'Ready on the firing line.' In firing for the record course, if a shooter fails to unlock his weapon on the command, 'Ready on the firing line,' and therefore does not have sufficient time to finish his string of five shots during the time allowed, he has no alibi and loses credit for any shots he failed to get off.

The object behind dry fire rapid fire procedure is to accustom the student to the time allowed for the firing of the five shots and to develop a fast, smooth trigger squeeze. The instructor will notice that, after a group has practiced this for some time, all men will seem to fire their shots almost simultaneously. If the first shot of the five fired at 15 yards in 11 seconds is fired one second after the command, 'Commence Firing,' the second shot should come at 3½ seconds; the third, at 6 seconds; the fourth, at 8½ seconds; and the fifth, at 11 seconds.

After the class has had sufficient practice at dry firing for the 15 yard, 11 second, rapid fire procedure, then they can move to the 25 yard, 15 second, rapid fire procedure. The commands, etc., are exactly the same. This time, however, five shots are fired in 15 seconds instead of 11 seconds. The student will have a tendency to hurry and to finish in 11 seconds again. After the class has begun to show improvement in both rapid fires, jump back and forth from one to the other, first 11 seconds, then 15 seconds, then back to 11 seconds, etc.

In all of these rapid fire procedures the instructor must still observe the student for flinching and failure to follow through. These two faults are more pronounced in rapid fire than in slow fire. All inexperienced pistol shooters have a tendency to jerk the trigger and flinch in rapid fire shooting. The student should still 'call his shots' even in dry firing. It is only through practice and calling the shots that proficiency is gained in rapid fire firing with the pistol.

Rapid fire is the practical part of pistol instruction. This is usually the type of firing that will be done in combat and, therefore, should be stressed in the classroom.

At 25 yards, it becomes more difficult to fire a good score than from 15 yards. When firing the two 5-shot phases of rapid fire, there should be given a short rest period between the two phases. Fire one string of five shots, rest the group for a few minutes, and then proceed to fire the other five shots.

**Timed Fire.** Firing at the bobbing targets is called timed fire. The bobbing target appears or faces the shooter for three seconds, then disappears or turns away from the shooter for three seconds. Only one shot will be fired at each appearance of the target. If the shooter fails to get off a shot at one appearance of the target, he is not allowed to fire two shots at its next appearance. He loses the value of this unfired shot altogether. 15 shots will be fired at the bobbing target for the record course. These will be fired in 5-shot phases with a short rest between phases. Any hit on the target will count, even if the bullet merely nicks the edge of the target. Each hit counts 6⅔ points.

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If all 15 shots hit the target the shooter gets 100 points towards his score; one miss is 93⅓, two misses 86⅔, and so on. When the shooter flinches or jerks while firing on the bull's-eye target, the shot will usually go down and to one side. The point of aim should be somewhere in the center of the body but not at the heart region. If the weapon is aimed at the heart region of the target, a shot two to three inches too high or too far to the right will result in a complete miss. Trigger squeeze is just as important here as it is in firing at the bull's-eye target.

Practice for firing at the bobbing target can best be done on the range with the use of the target itself. This applies to dry firing as well as actual firing. If this is impossible, a sheet of paper approximately the size of average typing paper can be used indoors. Have one student hold the paper while a second student dry fires on it. The student holding the paper can turn the edge towards the shooter, then the face of the paper towards the shooter, and so on. The instructor should have a watch with a sweep second hand to time both the dry firing exercises as well as the actual range firing. The target faces the shooter for three seconds and then turns away for three seconds.

After each shot at the bobbing targets, regulations say that the shooter must return his pistol to the position of raise pisol. As the target again turns to face him for the next shot, he extends his pistol towards the target, aims, and fires.

The following are the requirements for qualification with the U. S. pistol, caliber .45, model 1911 (A1) (Note: This does not apply to the revolver.)

| | | | |
|---|---|---|---|
| 10 Shots | Slow Fire (No Time Limit for Slow Fire) | 25 Yds. | Possible 100 |
| 10 Shots | Rapid Fire (11 seconds for each 5 Shot Phase) | 15 Yds. | Possible 100 |
| 10 Shots | Rapid Fire (15 seconds for each 5 Shot Phase) | 25 Yds. | Possible 100 |
| *15 Shots | Timed Fire (3 seconds for each shot at Bobbing) | 25 Yds. | Possible 100 |
| | | GRAND TOTAL | 400 |
| | | Divide by four (4) to get NET TOTAL | 100 |

| | |
|---|---|
| MARKSMAN | 62 out of possible 100 |
| SHARPSHOOTER | 75 out of possible 100 |
| EXPERT | 86 out of possible 100 |

* Each hit on a bobbing target counts 6 and 2/3 points.

This course is fired on the 'L' target with the exception of the timed fire which is fired on the 'E' target.

## DETECTING ERRORS

A good pistol instructor can look at the group of shots fired on the target and can tell the student what errors he is making without ever seeing the student fire. This does not apply in the case of one or two shots, but will be found to be true in the case of a group of shots falling in one area on the target.

A group of shots to the right and slightly above the bull's-eye is caused by canting the pistol to the left.

A group of shots to the left and slightly below the bull's-eye is caused by canting the pistol to the right.

A string of shots to the right of the bull's-eye is caused by too much trigger finger.

A string of shots to the left of the bull's-eye is caused by not enough trigger finger.

A string of shots at 7 o'clock quite some distance from the bull's-eye is caused by flinching for a right-handed shooter. For a left-handed shooter this group would be at 5 o'clock.

Shots directly above or below the bull's-eye by a small margin are caused by incorrect sight picture.

Shots almost directly below the bull, but down at the very bottom of the target are caused by the student's thrusting his hand forward just before discharge to overcome recoil. (Use dummy rounds to correct this.)

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Shots striking very high on the target are usually caused by body movement. The shooter flinches with his entire body in an effort to overcome recoil. He actually throws his whole body forward just as the trigger is pulled. (Use dummy rounds)

Generally speaking, these statements will apply. There are exceptions to these rules but they are very seldom found. If a weapon fires high and to the right for several men, all of whom are fairly good pistol shots, then it is evident that the weapon itself is off. Most students will have the tendency to blame their misses on the weapon. 99 times out of 100 it is the man, not the weapon.

The instructor should learn these rules and know them well. He will then be able to tell practically any student just what his mistakes are, and help him to correct them by reviewing the preliminary instruction which concerns that error.

## SAFETY PRECAUTIONS

Range regulations are covered by AR 750-10. All range officers and all instructors should familiarize themselves with its contents. Safety precautions are most important. Teach them first and insist on their being carried out to the letter. A few precautions are stated here for the benefit of those concerned. Safety habits should be stressed early in all pistol and revolver work and continually practiced.

All pistols must be kept locked OPEN at all times except when actually firing or after the command, "With ball ammunition, LOAD AND LOCK".

After firing has been completed for any particular phase of the course, all weapons should be opened and locked open.

No one will be allowed to advance in front of the firing line until all weapons have been locked open and cleared by the range officer or his assistants.

In slow fire, when a shooter has finished firing, he will lay his weapon down on the table, locked open, and retire to a position behind the firing line.

Coaches will load the clips and hand them to the shooter upon the command, "With ball ammunition, LOAD AND LOCK".

At no time will the students be allowed to carry loose ammunition on their persons or in their hands.

Whenever the weapon must be moved from one firing point to another, each shooter shall take his own weapon to the next firing point with the weapon locked open and carried at the position of RAISE PISTOL. The clip must be removed from its recess.

**Instruction For Marksmanship With the Revolvers.** So far nothing has been said about firing or instruction with either of the service revolvers. (U. S. Revolver, Caliber .45 Model 1917—Colt or Smith & Wesson.)

Fundamentally, instruction is much the same. Trigger squeeze, follow through, and trigger control are of just as much importance.

In firing the course with the revolver, all shots are fired *single action.* That is, the hammer is drawn back to the full cock position with the thumb of the shooting hand. This applies in slow fire as well as in rapid fire. No double action shooting whatsoever is done with the revolver in firing the course for record.

The same procedure can be followed for dry run practice with the revolver as was used with the pistol. Range procedure will remain the same, with all commands exactly the same.

At the command, 'Ready on the firing line,' when the *pistol* was unlocked and pointed towards the target during the five second delay before the command, 'Commence firing,' was given, the *revolver* hammer is brought back to the full cock position and the arm extended towards the target. In all cases during rapid fire or timed fire, the weapon is cocked immediately after the command, 'Ready on the firing line.'

The time allowed for firing rapid fire with the revolver is longer than with the pistol. The size of the target is not the same as the 'L' target which was used with the pistol, but the marksmanship instruction follows the same phases and subjects.

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## THE BROWNING AUTOMATIC RIFLE

There are two types of Browning automatic rifles; they are the M1918 (without bipod) and the M1918A2 (with bipod). The main difference between the two weapons is that the earlier model had full and semi automatic fire while the newer weapon has two cyclic rates of full automatic fire. (The functioning and technical differences are covered in the chapter on small arms.) The M1918A2 is the only weapon that is now in standard use as the M1918 has been declared obsolete.

The Browning automatic rifle (BAR) is an air cooled, gas operated, magazine-fed shoulder weapon. It weighs approximately 20 pounds. The two cyclic rates of fire are 'normal' and 'slow,' which may be selected by the firer. The normal cyclic rate of fire is approximately 550 rounds per min. and the slow rate is 350 rounds per min. The most effective rate of fire for this weapon is from 120 to 150 rounds per min. but the sustained rate of fire is from 40 to 60 rounds per min. This weapon fires the standard .30 cal ammunition-ball, tracer, incendiary or armor-piercing. It is equipped with a bipod mount that is attached to the flash hider as the normal position to fire the weapon is from the prone position.

On the left hand side of the weapon just back of the trigger guard there is a change lever that regulates the cyclic rates of fire. The rates of fire are designated by the two letters 'F' and 'A.' The safe position is designated by the letter 'S.' For the slow cyclic rate of fire push the change lever to the foreward position marked 'F'; for the normal cyclic rate of fire set the change lever in the vertical position against the change lever stop marked 'A.' To set the rifle at safe, depress the change lever stop and pull the change lever rearward until it covers the change lever stop. This position is marked 'S.' The change lever stop prevents the accidental setting of the change lever at safe and at the same time permits a quick change from safe to either the normal or the slow cyclic rate of fire.

*Firing.* Select the rate of fire desired and press the trigger, holding it for the length of the burst desired. Single shots may be fired by tripping the trigger very quickly with the finger (the rifle must be set at the slow rate of fire).

*Loading.* The 20 round clips are very easily loaded by hand. The magazine can be loaded from the standard five round clips by placing the five round clip on top of the magazine and, using the thumb, stripping the cartridges from the clip into the magazine.

To load the rifle, hold the magazine with its base in the palm of the right hand, cartridges pointing to the front. Insert the magazine between the magazine guides in front of the trigger guard and push it home. Tap the bottom of the magazine with the right hand to see that it is firmly seated. The magazine can be inserted with the operating parts either in a rearward or forward position. It is ordinarily inserted after the rifle has been cocked.

*Adjustment of Gas Cylinder.* In case a stoppage or a malfunction occurs because of insufficient gas, it may be corrected by adjustment of the gas cylinder. The gas cylinder has three different sized ports that can be used. Normally, the smallest port is used, but after continued firing without the proper cleaning the hole may become clogged with carbon and it will be necessary to use a larger port. The positions and different sizes of the holes are shown on the front of the gas cylinder by corresponding circles.

*Sights.* The front sight on the BAR is a fixed type sight that can be moved if necessary to help zero the rifle. The rear sight is of the leaf type with a fixed peep or battle sight that is used with the leaf in the down position. With the rear sight leaf up, the sight is graduated in mils for elevation and windage. The peep or battle sight is set for 300 yards.

*Firing Positions.* The normal firing position with the BAR is the prone position using the bipod mount. The other positions are the same as those for the rifle with the exception of the assault position (rifle held and fired from the hip). Due to the volume of fire that the BAR can put out in a short length of time, it is a very good weapon for defense againstlow flying aircraft.

*Safety Precautions.* Under normal conditions the rifle should be loaded with the bolt forward. The magazine can be loaded from this position and the rifle is relatively safe.

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*Tactical Employment.* The antitank mine is used tactically in almost all types of operation, offensive as well as defensive. It is the best quickly placed antimechanized obstacle available to the Army at the present time. It is designed to immobilize any vehicle passing over it. The purpose of a mine field is to delay enemy armored forces under fire until they are destroyed by that fire or by counterattack, and to divert them into areas best suited to the defender.

Mine fields are used first, to close gaps in the main natural obstacles on which a defensive position is based, or as a continuous field where a natural obstacle does not exist, second as protective fields around individual defense areas, and third, for road blocks.

To be effective, a mine field must be defended by fire. Undefended mine fields delay the enemy only for the relatively short time it takes to bypass them or to remove enough mines to permit passage.

*Pattern.* The pattern of the hasty mine field is shown in Figure 267. It is one that can be laid and recorded rapidly by a small working party. Its density is the

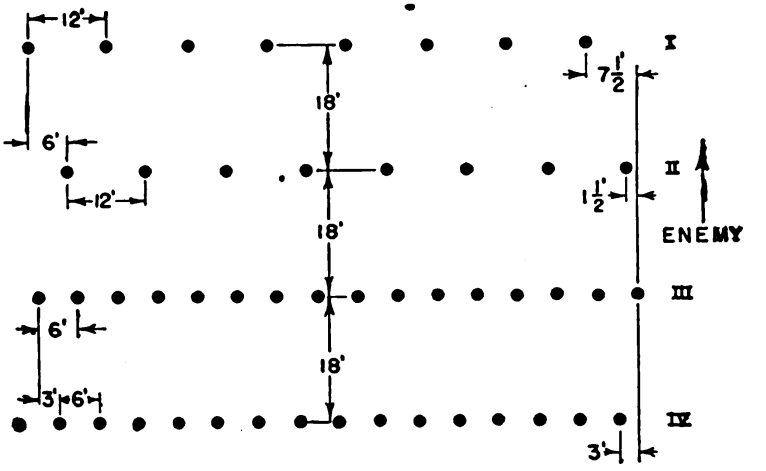



**Figure 267. Hasty Mine Field Pattern.**

same as that of the deliberate mine field, 1½ mines per yard of front; its depth is 54 feet. If time and the situation permit, the hasty mine field can be changed to a deliberate mine field by rearranging and burying the mines.

The suggested drill for laying a hasty mine field with the M1A1 or M4 mine is shown in Figure 268. (In laying the M5 nonmetallic mine, the pullers would remove the safety ring and screw the plug down into place.) The suggested organization is as follows:

| Nos. | Designation | Task |
|---|---|---|
| 1 | Squad leader | General supervision. |
| 2 and 3 | Suppliers | Place mines on tail gate for layers. |
| 4 | Layer, row 2 | Layers each carry four mines per trip to their row; lay one mine on ground in row every other pace. |
| 5 | Layer, row 3 | |
| 6 | Layer, row 4 | |
| 7 | Puller, row 1 | Moves every other mine in row 2 six paces outward to form row 1, pulls safety forks all mines row 1. |
| 8 | Puller, row 2 (assistant squad leader). | Pulls safety forks all mines row 2. |
| 9 | Puller, row 3 | Pulls safety forks all mines row 3. |
| 10 | Puller, row 4 | Pulls safety forks all mines row 4. |

The organization described above is suited to a squad of 12 men. If the squad is at full strength, a private acts as puller for row 2, an additional private is available as a relief for the pullers and the assistant squad leader is charged with directing the truck operator and controlling the speed of the truck. In laying the field in darkness it is desirable to have extra men so that the pacers do not have to leave the line of mines. Men laying rows 2 and 4 guide on the man laying row 3.

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*Surveying, lay-out, and recording and reporting.* Organization. The detail for laying a hasty mine field consists of an officer in charge, a lay-out party, a survey party, and one or more laying parties as required.

The lay-out party consists of a stake driver, a stake carrier, and a tapeman. Its equipment should include a light truck with driver, a supply of stakes, a sledge and tracing tape. If tracing tape is not available, intermediate stakes should be set out at convenient intervals between the intersection points.

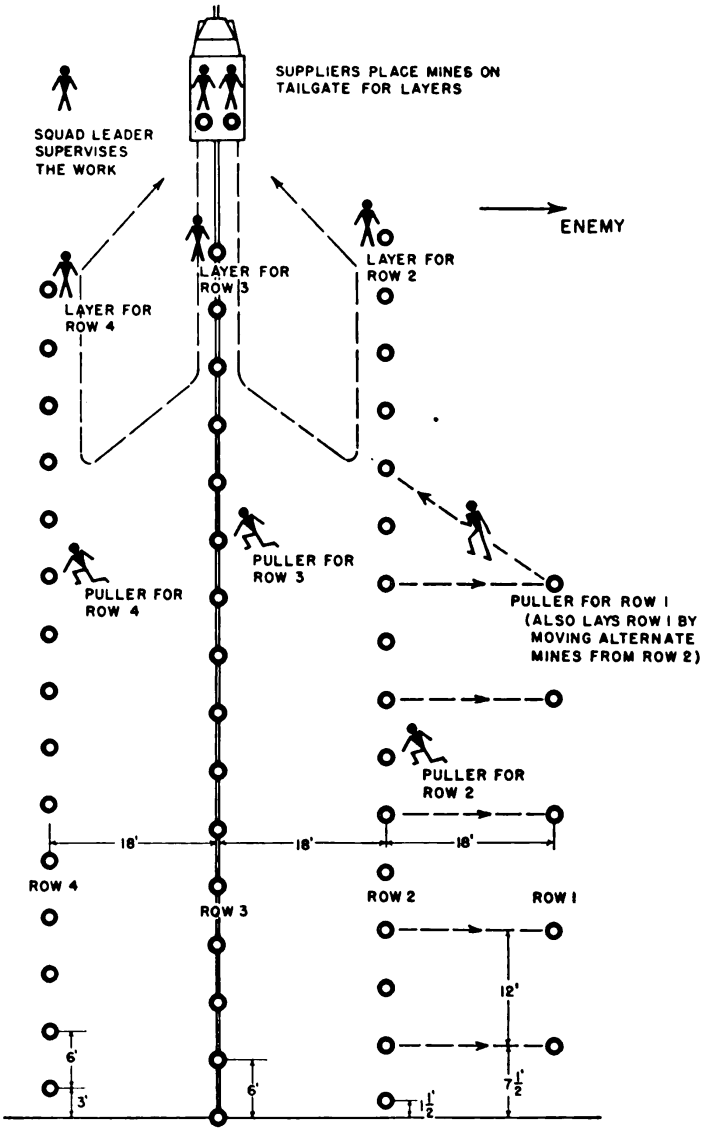



**Figure 268. Drill for Laying Hasty Mine Fields.**

The general location of the field is designated by the authority ordering its establishment. The officer in charge of laying the field, accompanied by a lay-out party, marks the reference line (row 3) of the entire field with tracing tape between the stakes driven at intersection points (*i. e.*, where the reference line changes direction).

A survey party follows and records the location of the field. This party consists of a noncommissioned officer to act as instrument man and recorder and equipped with a prismatic compass, sketching pad, and pencils, and a private to act as pacer. The party records the trace of the reference line of the field, the number of mines laid, and the pattern. The mine field is recorded on the sketch as follows: locate the first stake at one end of the reference line by azimuth and distance from one or more terrain features that appear on the topographic

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map. Plot straight line courses from intersection stake to intersection stake and indicate azimuth and length of each course. Every 500 to 1000 yards at any intermediate stake, tie in the traverse and also tie in to a terrain feature. Similarly, tie in the final reference line stake.

Topographical features that may be used are crests of hills (if sharply defined), centers of a crossroads or road junctions, bridges, high towers, or other structures. Each reference point should be identified on the sketch by coordinates from the map. Magnetic azimuths should be checked by taking back azimuths. All paced distances are recorded in feet.

In open terrain, in daytime, one 10-man laying party can lay 400 yards of hasty mine field in 25 to 40 minutes.

Upon completion of laying the hasty mine field, the report of location should be turned in by the officer in charge to the next higher headquarters.

*Antitank Mine Road Block.* A variation of the hasty mine field pattern is utilized for antitank mine road blocks. The road block pattern is the hasty mine field pattern laid with double density, that is three mines per yard of front. To lay this pattern the layers of rows 2, 3, and 4 lay a mine along the rows at every other pace. Otherwise, the method of laying is the same.

*Removal of Hasty Mine Field.* The operation of removing a hasty mine field is simple, rapid, and safe, since the mines are not buried, activated, nor interspersed with antipersonnel mines. The operation consists of:

(a) Location of boundaries from the record.
(b) Replacing safety devices.
(c) Removing fuzes.
(d) Accounting for each mine.
(e) Removing mines from the field.
(f) Reporting removal of field to the next higher headquarters.

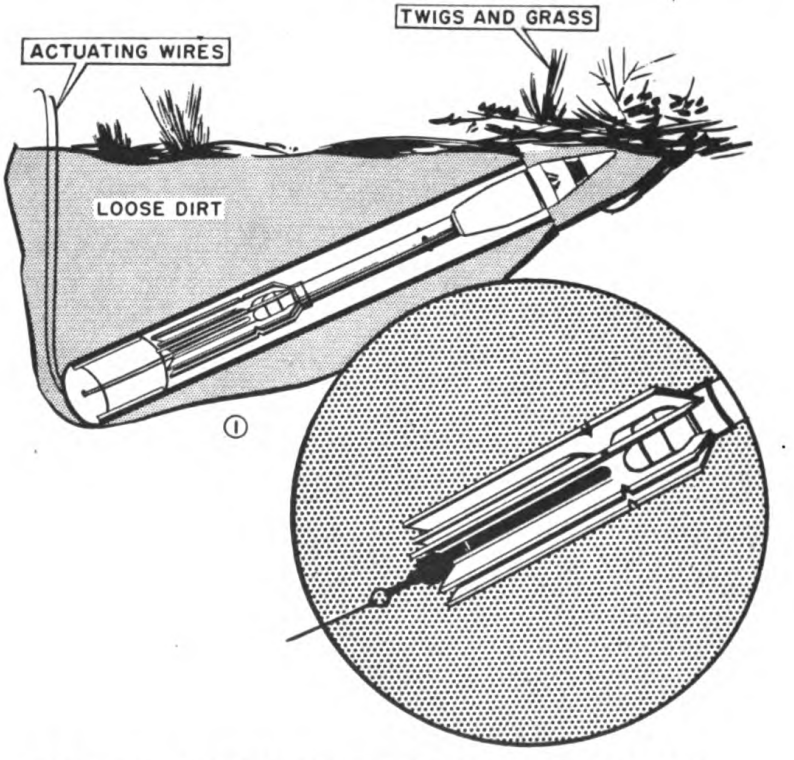



**Figure 269. Antitank Rocket as Improvised Antitank Mine.**

*Use of Antitank Rocket as Antitank Mine.* (Figure 269). The antitank rocket M6 may be employed as an improvised antitank mine as follows. The rocket, nose up in its container, is placed in a hole about 2 feet deep, either in a roadbed or horizontally in the side of a cut or bank. It can be set to fire electrically by arranging a circuit, containing the rocket, a battery, and an improvised circuit

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closer. Connections to the rocket are made on the ignition wires, one from the brass ring on the nose, the other from the fins. Ordinary twisted-pair field telephone wire will serve; the battery and connections should be protected from water if necessary.

Figure 269 shows a rocket prepared for firing. The container cap has been removed and the other end knocked out. The container is thus used as a guide for the rocket. A hole is punched in the container cap through which the electric firing device wires (or trip wire) are run. When connections have been made, the container cap is slid in place over the fins to protect the contacts from fouling. The rocket safety pin is removed, the container tube is slid over the rocket and joined to the cap, and the assembly is placed in the hole. Loose dirt and leaves are then placed over all of the rocket except the nose which is concealed by covering with leaves or light bunches of grass. Care must be taken not to bump the nose, as the rocket is completely armed once the safety pin is removed.

Figure 269 shows the rear end of a rocket prepared for firing, using a trip wire actuated igniter (pull-firing device).

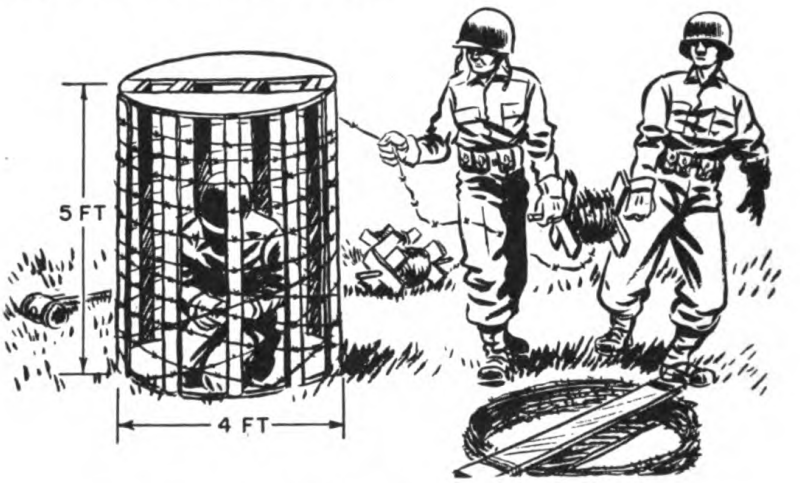



**Figure 270. Concertina Barbed Wire Entanglement.**

*Barbed Wire Entanglement.* Barbed wire entanglements that may be constructed in a short time for use by an Ordnance unit in the field are of three types:

(1) Concertina
(2) Knife Rest
(3) Spirals

The spirals and the concertina are of little use in stopping tracked vehicles, but are effective against wheeled vehicles.

*Barbed Wire Concertina* (Figure 270). This is a portable obstacle which may be made in the field, but should be prefabricated in rear areas. Commercially manufactured tempered steel barbed wire concertina may be issued.

To construct a concertina with little equipment place nine posts equally spaced approximately 17 inches apart around the circumference of a circle 4 feet in diameter and drive them into the ground, leaving the top at a height of 5 feet. A Circle framework should be fitted inside and near the top of the posts to prevent them from moving inward as the coil is wound. This frame should be removable. One hundred yards of barbed wire are required for each concertina, and short lengths of plain wire and required for fastenings. See Figure 270.

The construction party requires three men. The first work inside the framework, and the other two men pay out the wire from the reel. To construct the concertina: (Figures 270 and 271).

(1) Take two complete turns around the outside of the nine posts with No. 10 plain wire or four turns with No. 16 wire, and bind these turns together at the intervals between posts to form a still ring for end of concertina.

(2) Fasten end of barbed wire to plain wire ring, make 24 spiral turns around posts, and bind consecutive turns together at every second interval between posts using No. 16 plain wire for binders.

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(3) Make two turns with plain wire at top (in same manner at bottom) and fasten it to a barbed wire.

An alternative method for constructing concertinas with less expenditure of labor, is by winding the wire on an improvised horizontal drum instead of the upright posts. The wire is furnished direct from a reel. This method should always be used when the volume of work justifies the trouble of improvising the necessary drum.

The concertina should be prepared for carrying by one of the two methods:

(1) By wiring slats or stakes to each face of closed roll, and then wiring stakes together. This compacts the coil. Other points along the coil are tied lightly with tape. The concertina is then carried easily by two men.

(2) By eliminating the slats and attaching two handles improvised from No. 10 wire. One man can easily carry the concertina by stepping into it and using these handles.

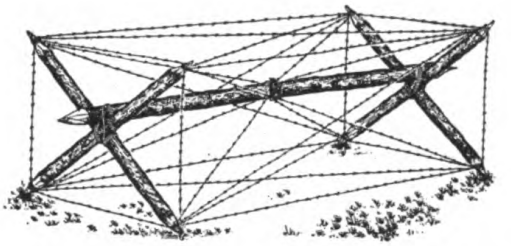


**Figure 271. Knife Rest Barbed Wire Entanglement.**

*Knife Rest* (Figure 271). The knife rest (cheval de frise) consists of a portable framework of wood or metal upon which has been strung a barbed wire. It is similar in appearance to a sawbuck. Knife rests are used to barricade roads and streets; as under water barricades in beach defense (metal framework), and in any other position where a readily removable barrier is needed.

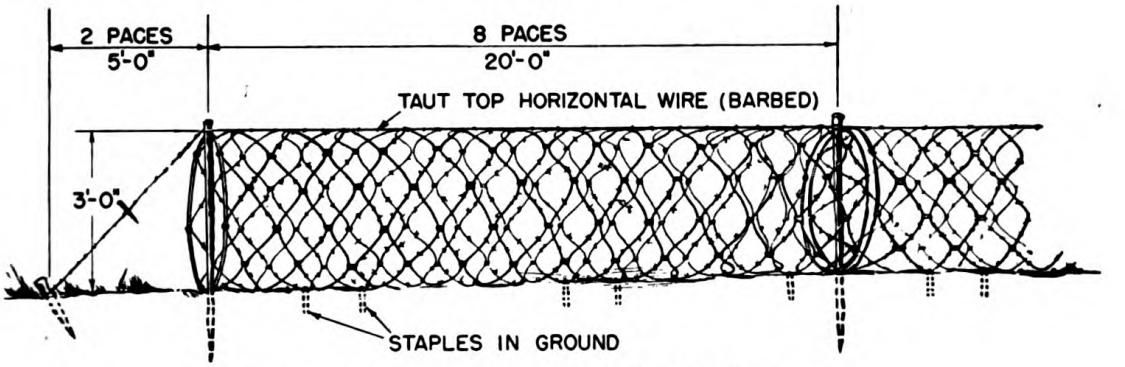



**Figure 272. Concertina Barbed Wire Entanglement.**

*Spirals of Loose Wire.* Wire entanglements may be thickened by the addition of spirals of loose wire. Narrow intervals between entanglements may be filled with these spirals to hinder lateral movement of troops.

To make spirals of loose wire, a diamond is formed on the ground 3 by 1½ feet and 3 foot posts are driven at the four corners. Seventy-five yards of barbed wire are wound tightly around this framework. Work is started at the bottom and proceeds gradually up the stakes in a spiral. The spiral is taken off the posts and tied in four places with tape. It can then be carried easily to the place where it is to be opened out and used. If spirals are needed in large quantities, a winch may be used to coil the wire.

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## IDENTIFICATION OF AIRCRAFT AND ARMORED VEHICLES

**Introduction.** The ability to identify quickly and positively various aircraft and armored vehicles is one of the most important assets to the training of Ordnance personnel. The nature of Ordnance operations makes units in the field more vulnerable to attack by these weapons than by any other. Past experience during this war has shown that whenever maintenance or other units are contacted by the enemy, it is usually through the medium of attacking planes or is the result of a break-through spearheaded by armored columns. There are many instances of Ordnance units being under almost constant bombardment in some areas where the enemy has had air superiority. Furthermore, during the African campaign, it was often impossible for anyone to know just where the 'line' lay. Service units were apt to find themselves in the path of advancing armored columns. Maintenance units have found it desirable, and at times necessary, to set up anti-aircraft and anti-tank weapons which were in their shops for repair, using them against the attackers. The following is a prominent example taken from the publication *Firepower,* June 1944, which shows the direct use of weapons that may be in your shops.

"Infantry training which Ordnancemen receive is immensely valuable. An Ordnance soldier must not only be ready to repair his guns but also to use them. In one instance that I recall, a group of heavy maintenance men were repairing some 105's when several Nazi tanks broke through and came roaring down the beach for the kill. The men dropped their tools, swung the 105's around and at 800 yards blazed away with the very equipment they were repairing."

One important reason for training all army personnel in the recognition of aircraft and armored vehicles, is that costly mistakes of destroying our own and allied planes and armored vehicles may be avoided. There are many instances in which lives, planes, and tanks have been lost to us through the trigger-happy impetuosity of gunners who were inept at recognizing friendly planes and vehicles. Anti-aircraft fire must be brought to bear on hostile planes in a matter of seconds, but during those seconds the gunner must be able to determine beyond all doubt whether or not the plane is a hostile one. The same situation prevails, in a somewhat less fleeting manner, with regard to armored vehicles.

The matter of protection against attack by aircraft and armored vehicles is adequately covered in other chapters of this Guide. Let us here discuss in a general way some of the pertinent principles involved in such defense. Fundamentally, all defense against attack by armored vehicles or aircraft is either passive or active; Ordnance personnel are more concerned with the former. Protective measures involved may include warning, concealment, cover, dispersion, and fire power; only the latter is considered an active defense measure. It is probable that the mission of a unit may prevent full use being made of all these measures, but the absence of a warning system is inexcusable. The most effective warning system is to remain in contact with another unit which has well-developed warning facilities. If this is impossible, it will be necessary to set up one's own anti-aircraft lookouts. It is essential that some such system be developed, as the task of warning of the approach of hostile aircraft cannot be left to the unit as a whole. If this is done, the efficiency of the group as a technical team and their efficiency as a warning system will both be impaired. It is in the performance of the duty of lookout that the men will find it essential to be able to recognize various planes. The same may be said of armored vehicle recognition by personnel who man outpost around a bivouac area. As such personnel will almost invariably come from within the unit, it is essential that all members of the unit be proficient in this recognition in order that all may draw this detail. For the other defensive measures—camouflage, field fortifications, and fire power—reference is made to articles on those subjects.

**Aircraft Recognition and Identification.** In order to outline most effectively a course of instruction in this or any other subject it is necessary to know how much time and what equipment is available. Furthermore, the type student to be encountered and his immediate background and future will determine to a large extent the instruction which he is to receive. For these reasons, the instructor must view all suggested training procedures included herein as possibilities and not as a strict guide to instruction.

The introduction or motivation phase of this subject can be as long as time per-

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mits, but in any event should accomplish the purpose of impressing on the men the importance of instantaneous recognition of aircraft. Allusion may be made to the many cases of American and allied planes being destroyed by our own fire, with consequent heavy losses of life.

Tragic accidents like this example still occur when men do not know recognition. As one isolated example, some months ago in the Pacific, a B-25 pilot on patrol spotted two torpedo boats below him. Not recognizing them as U. S. Navy PT's he came down on them, strafing with his eight .50-caliber machine guns. They, in turn, opened up on him. While the first PT was still sinking, a patrolling Navy fighter happened to come along, swung in on the bomber and shot it down. The bomber pilot never lived to make explanations, nor did all the PT men.

Such accidents can and do happen with incredible rapidity and without apparent reason. Only thorough knowledge of all the equipment in a theater will forestall such terrible instances.

Thorough discussion of the possible consequences when ground troops fail to recognize hostile planes is certainly to be desired. Personal experiences of the students color all instruction. Stress the fact that light bombardment is the striking element of combat aviation which operates in direct support of ground forces. For this reason the identification of this type of aircraft is extremely important. In this connection, discuss the use of a tactical air force. The use of such a force, in more or less direct connection with ground troops, can be explained and contrasted to the strategic uses of heavy bombers. Any discussion which will give life to the subject is time well spent. No matter how little time may be allotted to this subject, it is necessary to "sell" it to the student before proceeding.

In order that all may be at least somewhat familiar with the types of planes under discussion it is well to introduce the types of U. S. Army planes. Such a discussion will serve to familiarize the student with types of planes according to their missions. The types of U. S. Army and Navy planes are as follows:

A. Combat types
   1. Pursuit or Fighter.
      a. Interceptor (P-38, P-39, P-40, P-43, P-47, P-51, P-61, P-63 and P-70)
      b. Single engine Fighters (P-35, P-36, F4F, F6F, F4U)
      c. Multi-engined Fighters (P-38 and P-70)
   2. Bombardment.
      a. Heavy (B-17, B-24, B-29, PB2Y)
      b. Medium (B-25, B-26, PV, PBY)
      c. Light (A-20, A-24, A-26, A-35, SB2C, SBD, and TBF)
   3. Reconnaissance and Observation.
      a. Corps and division reconnaissance plane (F-2)
      b. Observation (O-46, O-47, O-49, O-52, and OS2U, SO3C)

Note: Explain that observation planes are used within our own lines while reconnaissance planes are used deep into enemy territory.

B. Non-combatant types.
   1. Transport (C-46, C-47, C-54, C-87, C-60, and PBM)
   2. Training.
      a. Primary (PT-17, PT-18, PT-19, and PT-21)
      b. Basic (BT-9, BT-10, BT-13, BT-14, and BT-15)
      c. Advance (AT-1, AT-6, AT-7, AT-8, AT-9, and AT-12)

As a means of presenting the actual subject of identification it is important to give the various methods of identification. The method which is best known is by means of characteristic visible features. In addition, aircraft may be identified by their maneuverability and operation, and by their characteristic sounds. Generally a combination of all three is used. The best (but the most difficult) method is to learn to identify a plane by its sound, as this can be used at night or at times of low visibility. Recognition by visible features will be considered in ths chapter.

The matter of teaching recognition should follow a well-planned sequence so that the student is at no time given material which he cannot grasp. First, the important items of nomenclature are taught. An enlarged chart similar to Fig. 273 serves as an excellent training aid in this subject. For those interested in more detailed terms reference is made to the glossary which follows. Any discussion of the basic terminology of planes is incomplete without reference to the terms most

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generally used to describe characteristic appearance and structure. A very effective aid to this instruction is shown in figures 273 and 274.

The next step is to present individual planes with emphasis on their silhouette, engineering form, and photographic appearance. At this point it is well to introduce interesting data and experiences concerning each plane. Any means of giving a plane a personality should be employed. In order to present this information, liberal use must be made of all available training aids. The training aid which reproduces the subject with the greatest realism is the motion picture. For this phase of training there are films which deal with the recognition of individual types of planes and planned on the principle that detailed knowledge is of basic importance. Flying shots are combined with close-ups stills, diagrams, and animated drawings. Another very effective means of presenting individual silhouettes, etc., is by the use of film slides and film strips. The length of time allotted for the recognition of each is at the discretion of the instructor; by reducing progressively the time of exposure it is possible to develop speed in recognition. Another very effective aid is the series of scale models of aircraft. Such models are constructed with scrupulous attention to detail and accuracy. They give the student a realistic, three-dimensional "feel" which no charts, silhouettes, or screen projections can give.

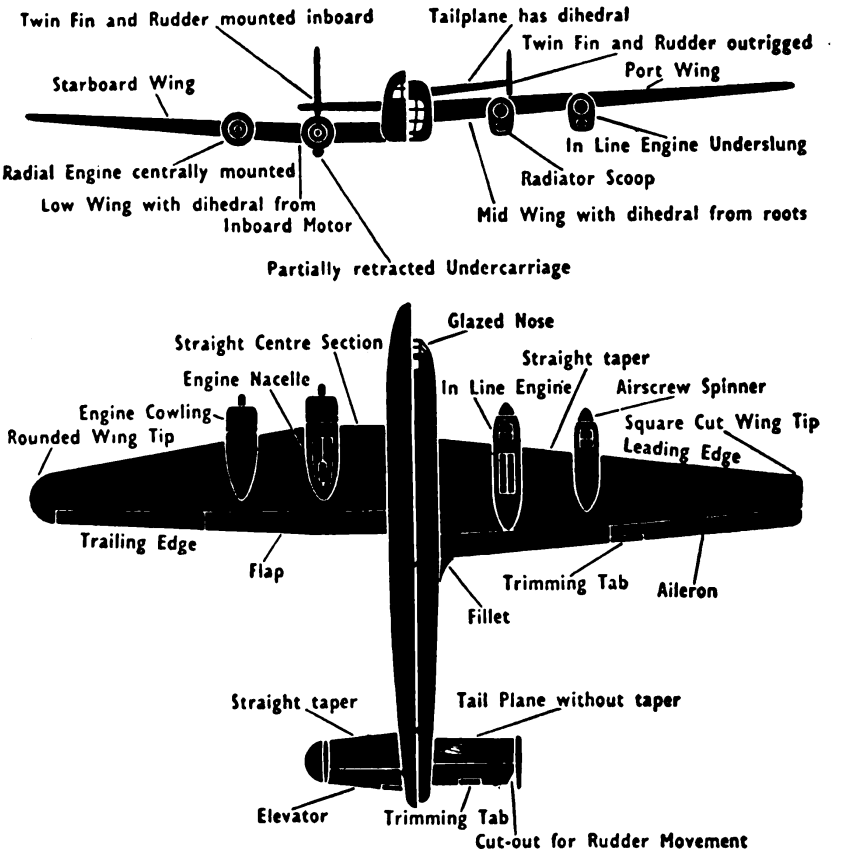
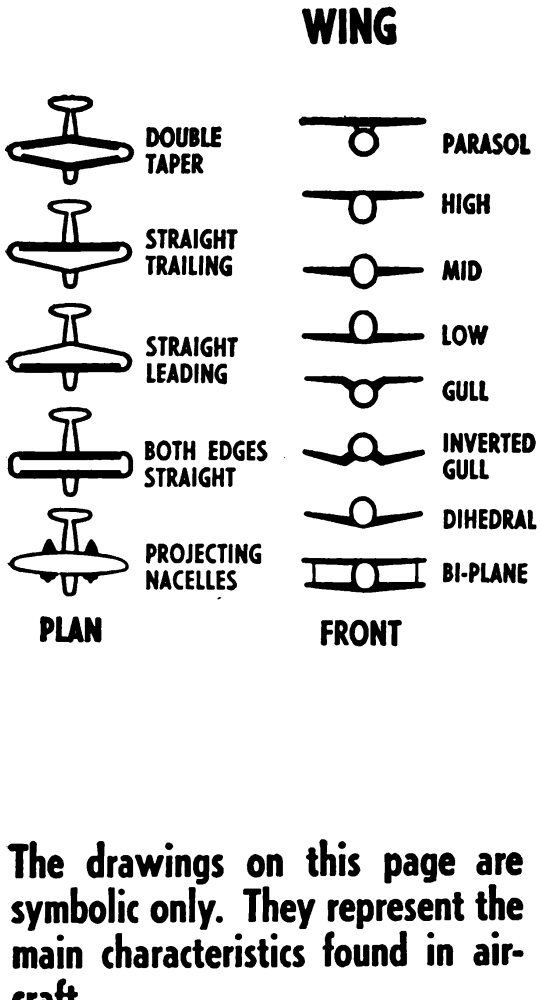



**Figure 273. Nomenclature, Aircraft Identification.**

After emphasizing the details of construction and form of each plane the next step is to have this information blend into recognition of total form. This feature of recognition has been aptly compared to our everyday recognition of friends. Let one ask himself the question, "When I see a friend walking down the street, do I look at him, analyze each feature, and then reason whether or not it is Bill?" Obviously not. We instantaneously recognize our friend because of familiarity with his features *in toto*. The aim is that recognition of aircraft may become instantaneous and "painless." For this purpose silhouettes and diagrams have little value as their emphasis is on detail and not on general appearance, but motion pictures are extremely helpful, and those films which show action shots of planes

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**The drawings on this page are symbolic only. They represent the main characteristics found in aircraft.**

Figure 274. Basic Terminology, Aircraft Identification.



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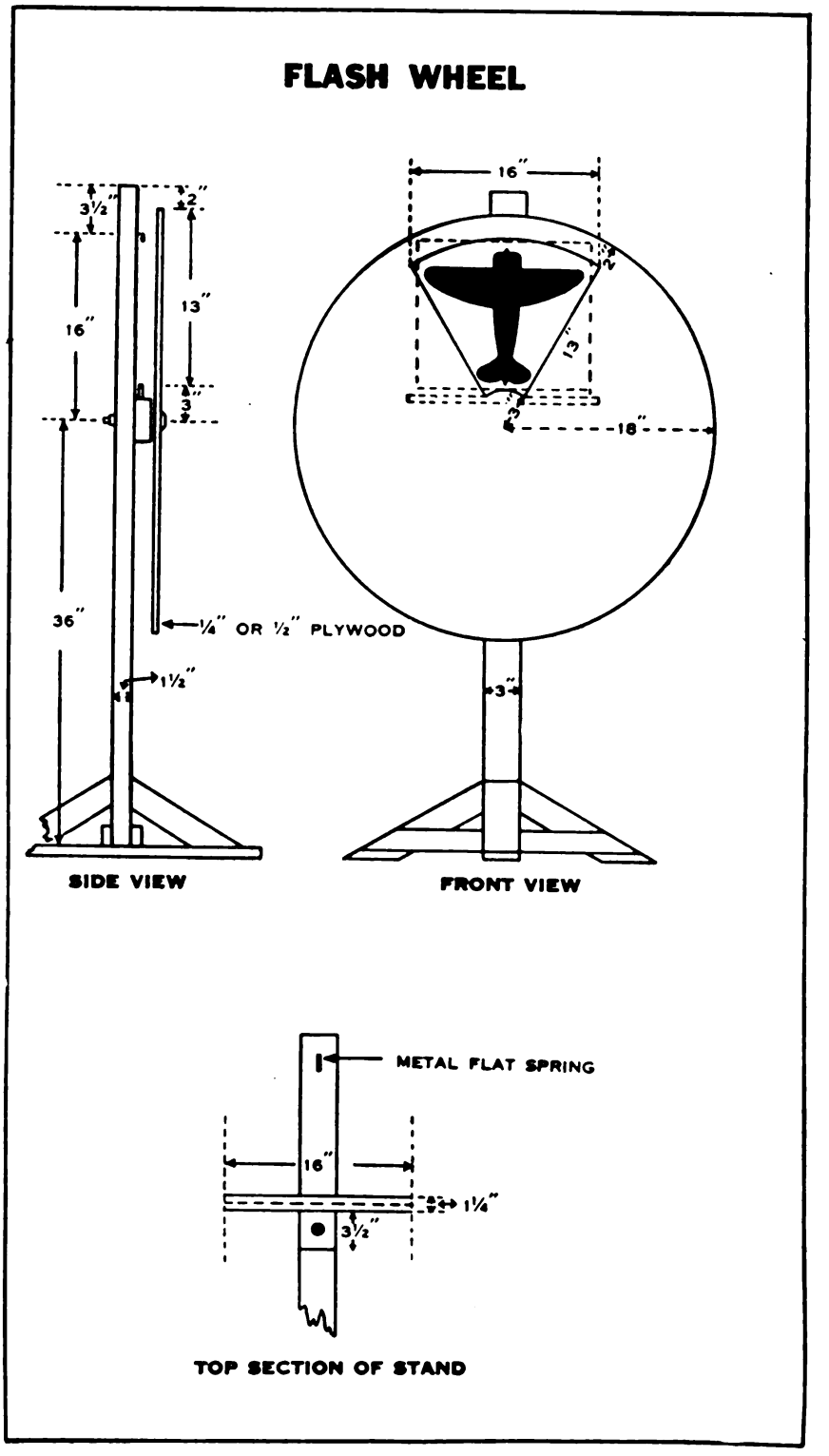



Figure 275. Flash Wheel.

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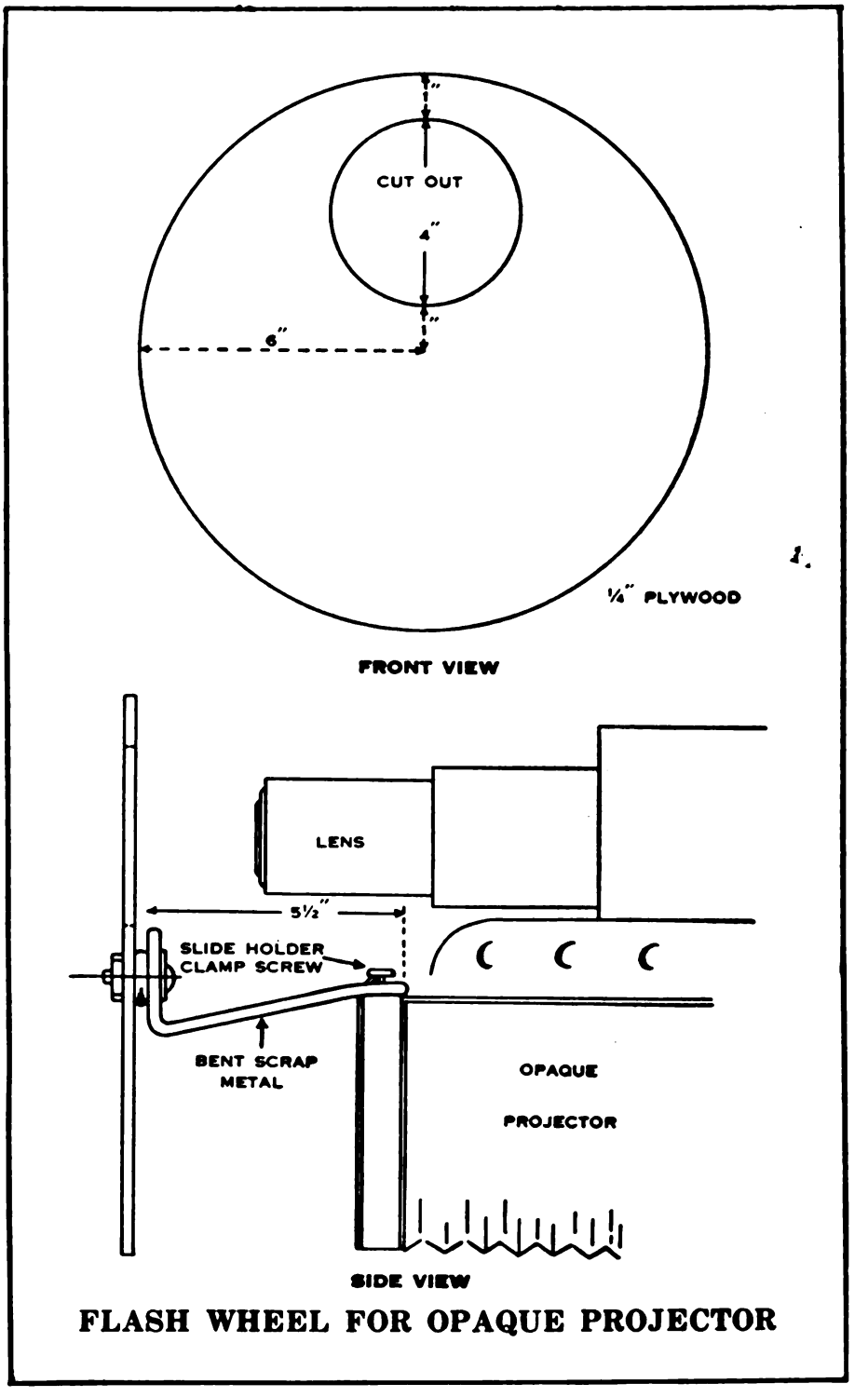



Figure 276. Flash Wheel for Opaque Projector.

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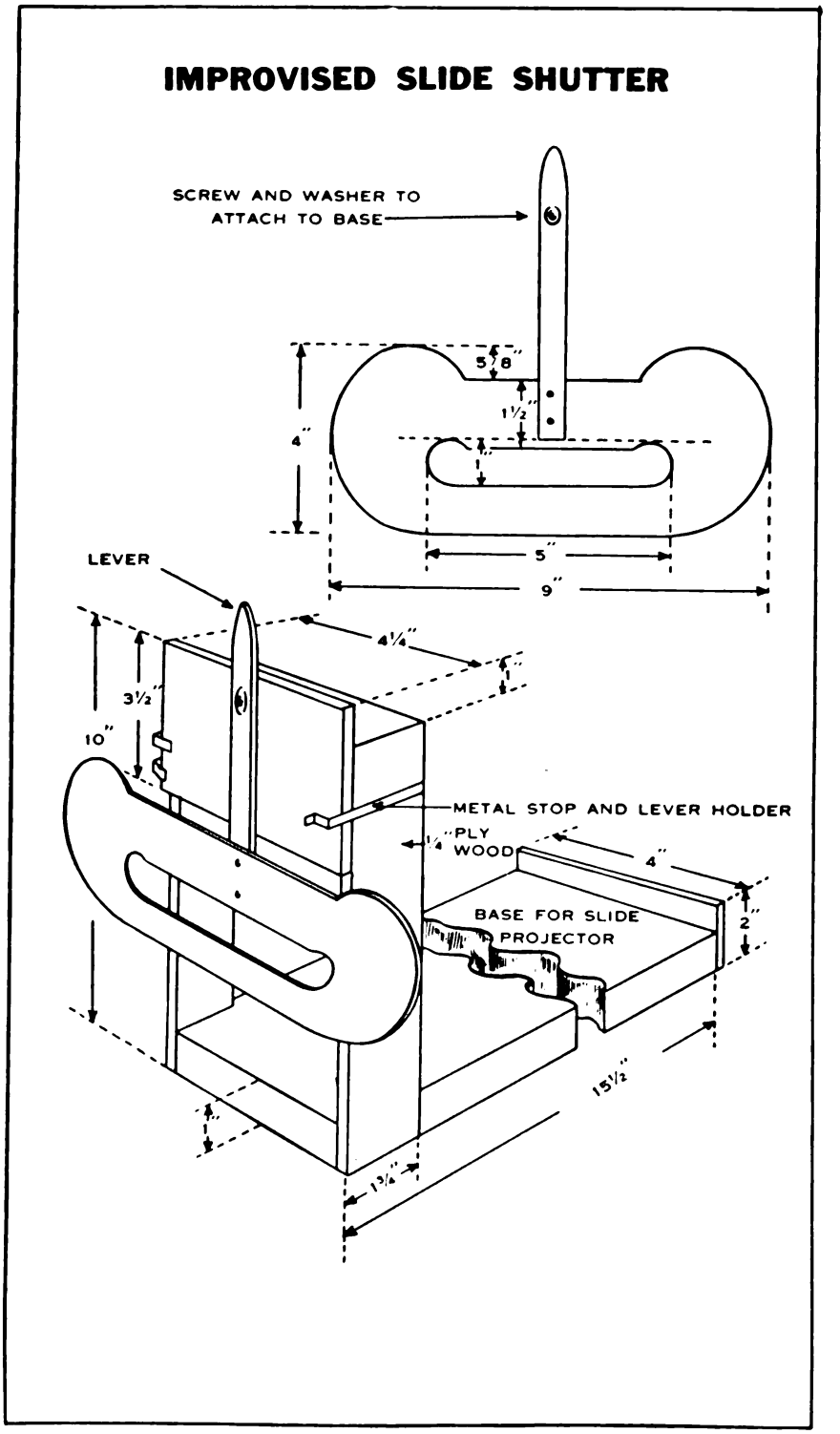



**Figure 277. Improvised Slide Shutter.**

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with only a short time allotted for the recognition of each are most effective. Film slides and film strips can be well used in this phase of the training, especially if the exposure time is progressively shorter, until finally the student sees the picture for so short a time that he cannot possibly look at each feature and reason out the type. A slide projector to which has been attached a flash meter will make it possible to reduce the time of exposure to as little as 1/100th of a second. Models are also good at this stage of the training.

Several improvised devices have been developed for use in presenting flash images of planes. These devices are not essential but are easily constructed and provide a means of controlling the length of the flash exposure.

To use the flash wheel shown in figure 275, the large wheel is turned so that the opening is to the bottom, and the silhouette views or pictures to be used are set on the 16-inch cross piece and are held in place by the flat metal spring fastened to the upright. Upon the signal, "Ready—Now," the instructor spins the wheel, stopping it after one revolution. The speed of the wheel determines the length of exposure of the subject. After the plane has been recognized, the wheel may be turned to expose the picture or silhouette while the instructor discusses the plane shown. The pictures and silhouettes for use in this device should be mounted on cardboard approximately 13 by 15 inches in order to rest evenly on the rack. The effect of greater range can be accomplished by the use of smaller pictures mounted on cardboard or by placing the wheel farther from the class.

Another improvised flash wheel, designed for use with an opaque projector, is shown in figure 276. This attachment is used in a manner similar to the flash wheel shown in figure 275, except that the opening in this wheel permits the lens of the opaque projector to cast the image of the subject silhouette or picture onto the screen, and the rest of this flash wheel makes the projection.

The improvised slide shutter explained in figure 277 is designed for use with a slide projector. The projector is placed on the base of the device, and the flash lever is set so that the mask covers the lens of the projector. The picture or silhouette to be shown is inserted into the projector, but the obstruction caused by the mask prevents the image of the picture from being projected to the screen. Upon the signal, "Ready—Now", the instructor quickly moves the flash lever to the opposite side. For the period that the opening of the mask is in front of the projector lens, the image of the picture or silhouette will be projected onto the screen. The length of the exposure is controlled by the speed with which the lever is moved and by the size of the opening in the mask.

Finally, the aircraft are observed under the most realistic conditions possible. Views to be used in this training are presented by the "Quizcraft" Series of motion pictures. This comprises flying shots and gives the student an opportunity to see the planes under conditions as nearly normal as possible. In conclusion, practical results are the final test, and a student must try his skill on every actual plane he sees and on every picture of one in a magazine or newspaper.

## GLOSSARY

**Aileron.** Hinged, movable portion of wing, usually at trailing edge, whose primary function is to induce a rolling motion on the airplane.

**Airfoil.** Any surface, such as an airplane wing, aileron, or rudder designed to catch the air and maintain the air pressure in internal combustion engines, ventilators, etc.

**Angle of Incidence.** The acute angle between the plane of the wing chord and the horizontal axis of the airplane. The angle is positive when the leading edge is higher than the trailing edge.

**Autogiro.** A type of rotor plane whose support in the air is normally derived from airfoils aerodynamically rotated about an approximately vertical axis, and whose forward speed is supplied by engine and propeller.

**Balanced Surface.** A control surface that extends on both sides of the hinge line, or that has auxiliary extensions to affect a balance on the hinge line. Used frequently on rudders, ailerons, and elevators.

**"Blister."** A colloquial term for a streamlined transparent housing protruding from the fuselage, containing movable armament.

**Camber.** The curvature of an airfoil from the mean line of its chord section.

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**Canopy.** A hood, covering, or enclosure.

**Chord.** The straight line joining the leading and trailing edges of an airfoil, also called "chord length".

**Cowling.** A removable covering, or around part—or all—of an engine.

**Dihedral Angle.** The acute angle between the longitudinal center line of the wing and an imaginary horizontal line. When a plane has positive dihedral the wings slope "up".

**Dive Brake.** A flap or slat which, when opened, reduces the speed of the airplane in a dive.

**Dorsal.** Pertaining to the back or top portion of the fuselage.

**Edge-Leading.** The entering or forward portion of an airfoil or propeller blade.

**Trailing.** The after or rearmost portion of an airfoil or propeller blade.

**Elevator.** A movable auxiliary airfoil usually hinged to the stabilizer. Its function is to induce a pitching motion on the airplane.

**Fin.** A fixed or adjustable airfoil to afford directional stability, such as a tail fin or skid fin, etc.

**Flap.** A hinged or pivoted airfoil forming the rear portion of an airfoil, used to vary the effective camber.

**Float.** A completely enclosed watertight structure attached to an aircraft to give it buoyancy and stability when in contact with water.

**Float, Inboard Stabilizing.** A stabilizing float placed relatively close to the main float or hull.

**Flying Boat.** A form of seaplane whose main body or hull provides flotation.

**Fuselage.** The body, of approximately streamlined form, to which the wings and tail unit of an airplane are attached.

**Gap.** The distance separating two adjacent wings of a multiplane.

**"Gill Ring."** The adjustable after portion of the cowling of a radial engine used to effect efficient air cooling.

**"Greenhouse."** Colloquial term for the transparent canopy or hood over the cockpit.

**Helicopter.** A type of rotor plane whose support in the air is normally derived from airfoils mechanically rotated about an approximately vertical axis.

**Hinge Line.** The joint between a fixed and a movable surface such as wing and aileron, stabilizer and elevator, fin and rudder.

**Hood.** A covering, canopy, or cowling, usually applied to the fuselage.

**Housing.** A covering over a space used to enclose a movable part such as retractable wheel gear.

**Hub.** The center portion of a propeller or wheel about which rotation occurs.

**Loop.** Radio antenna formed of coils of wire.

**Mast, Radio.** A fixed spear attached to an aircraft used for supporting a radio antenna.

**Monocoque.** Term applied to fuselage construction which relies on the strength of the skin or shell for its structural stiffness. The shell is reinforced vertically by structural bulkheads.

**Monoplane.** An aircraft with a single plane or wing. There are four general types:

**Low-Wing.** A monoplane whose wing is located at or near the bottom of the fuselage.

**Mid-Wing.** A monoplane whose wing is located at approximately the midpoint between top and bottom of fuselage.

**High-Wing.** A monoplane whose wing is located at the top of the fuselage.

**Parasol-Wing.** A monoplane whose wing is above the top of the fuselage and is supported by a cabane or other connection.

**Multiplane.** An airplane having two or more wings, superimposed.

**Nacelle.** An inclosed shelter for personnel or for a power plant. A nacelle is usually shorter than a fuselage, and does not carry the tail unit.

**Overhang.** (1) One half the difference in span of any two wings of an airplane. (2) The distance from the outer strut attachment to the wing tip.

**"Pants."** Colloquial term for the housing of nonretractable landing gear struts.

**Profile Thickness.** The maximum distance between the upper and lower contours of an airfoil, measured perpendicularly to the mean line of the profile.

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**Adjustable Propeller.** A propeller whose blades are so attached to the hub that the pitch may be changed while the propeller is at rest.

**Geared Propeller.** A propeller driven through gearing, generally at some speed other than the engine speed.

**Pusher Propeller.** A propeller mounted on the rear end of the engine or propeller shaft.

**Retractable Landing Gear.** A type of landing gear which may be withdrawn into the body, nacelle, or wings of an airplane during flight in order to reduce parastic drag.

**Rib.** A chord-wise structural member of the wing.

**Ring Cowling.** A ring-shaped cowling placed around a radial air-cooled engine to reduce its drag and improve cooling.

**Root.** The "base" of the wing where it is attached to the fuselage.

**Rudder.** A hinged, auxiliary vertical airfoil whose function is to induce yaw or side-to-side motion on an aircraft.

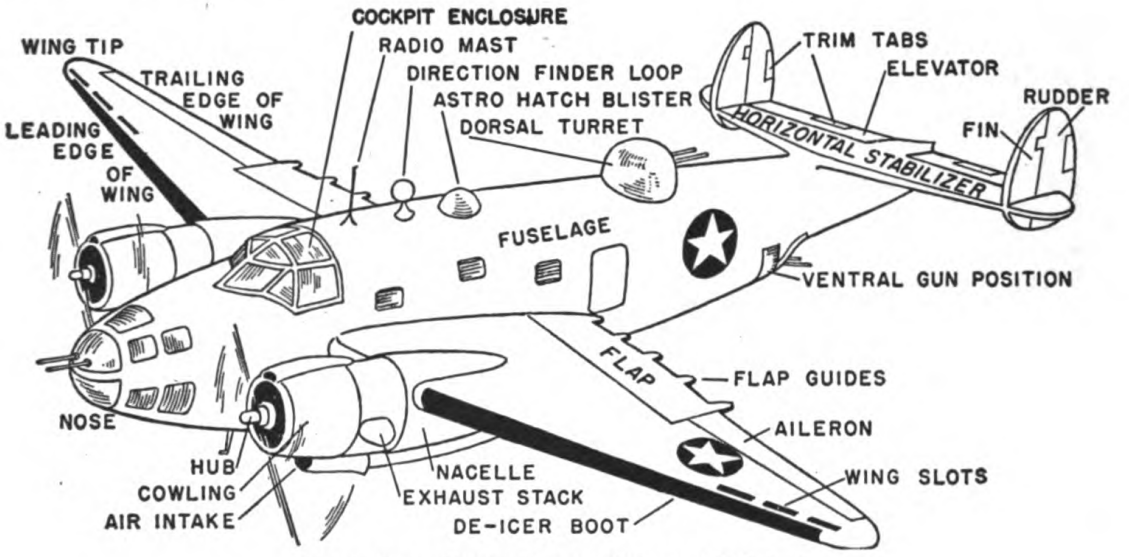



**Figure 278. Illustrations: Glossary of Terms.**

**Shaft.** The part connected to the power plant which drives the propeller.

**Skid Fin.** A fore and aft vertical surface, usually attached to the top of the wing to increase lateral stability.

**Slotted Aileron.** An aileron having an air passage between the nose of the aileron and the wing.

**"Spat".** An aerodynamically designed housing to cover a nonretractable wheel.

**Spinner.** A fairing of approximately conical or paraboloidal shape which is fitted coaxially with the propeller hub and revolves with the propeller.

**Sponson.** A protuberance from a seaplane hull designed to increase the beam or give lateral stability at rest.

**Spray Strip.** A strip projecting from the hull of a seaplane to change the manner in which the spray is thrown.

**Stabilizer.** Any airfoil whose primary function is to increase the stability of an aircraft. It usually refers to the fixed horizontal tail surface of an airplane, as distinguished from the fixed vertical surface.

**Stabilizer, Stub-Wing.** A projection from the side of the central hull of a flying boat intended to increase the buoyancy and stability of a flying boat while the boat is at rest and to increase the hydrodynamic lift during the take-off. It is an integral part of the hull, and usually takes the form of a stumpy airfoil or a stub wing.

**Step.** A break in the form of the bottom of a float or hull.

**Sweepback.** Term applied to a wing whose leading and trailing edges are further aft at the tips than at the center.

**Tabs.** An auxiliary airfoil attached to a control surface for the purpose of reducing the control force or trimming the aircraft.

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**Tail Boom.** A spar or outrigger connecting the tail surfaces and the main supporting surfaces.

**Turret.** A transparent movable enclosure housing armament. It may be free or power-driven. It may also be retractable.

**Ventral.** The lowermost part of a fuselage.

**Wing.** Main supporting surface or airfoil of an airplane. It can have many plan shapes, the most usual of which are:

**(a) Straight.** When leading and trailing edges are straight, parallel, and at right angles to the direction of flight.

**(b) Tapered.** When leading and/or trailing edges are not at right angles to the direction of flight, so that wing diminishes in chord length toward the tip.

**(c) Elliptical.** When leading and trailing edges are elliptical in general shape.

**(d) Curved.** When leading and/or trailing edge is rounded.

**(e) Sweptback.** When the general wing shape sweeps aft toward the tips.

**(f) Sweptforward.** When the general wing shape sweeps forward toward the tips.

Wings are also classified by their front view shape:

a. *Horizontal.* When the wing axis forms a horizontal line.

b. *Dihedral.* When the wing axis slopes up or down from the horizontal.

c. *Gull.* When the inner panel has positive dihedral and the remainder of the wing to the tip is horizontal or has positive dihedral.

## ARMORED VEHICLE RECOGNITION AND IDENTIFICATION

As stated in previous paragraph, recognition and identification of armored vehicles must be instantaneous. However, the length of time that fire power may be brought to bear on an enemy vehicle is usually longer.

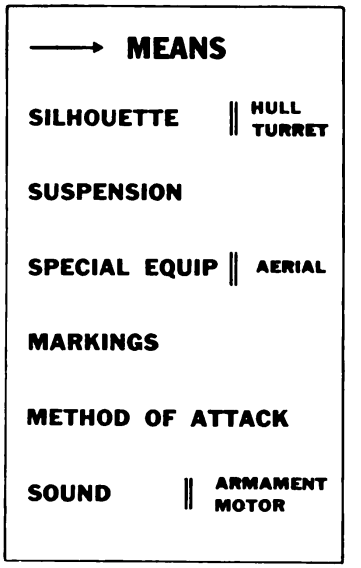



**Figure 279. Training in Tank Recognition.**

The Recognition Pictorial Manuals on armored vehicles, **FM 30-40, 3 November** 1943, is an excellent manual for this course. Nomenclature should be taught first. Note illustration in this section. Stress recognition features such as high and low hull silhouette; cylindrical, cone-shaped, pyramidal, prism or dome-shaped turrets; over-lapping, single or double, large and/or small bogie wheels. See figures 280, 281 and 282. Until recently American armored vehicles all had paired bogie system; however, now our newer vehicles (in particular, the 76mm Gun, Motor Carriage, M18) have the large single wheel bogie system which is comparable to the German armored vehicles. Here again, an enlarged chart shown in **Figure 284** will show the comparison between allied and enemy armored vehicles in silhouette.

In discussing armored vehicle recognition, you must stress the fact that greater security of your unit will result from this training. It was proved in Africa that since we are fighting a highly mobile war, one can never say that because he is an

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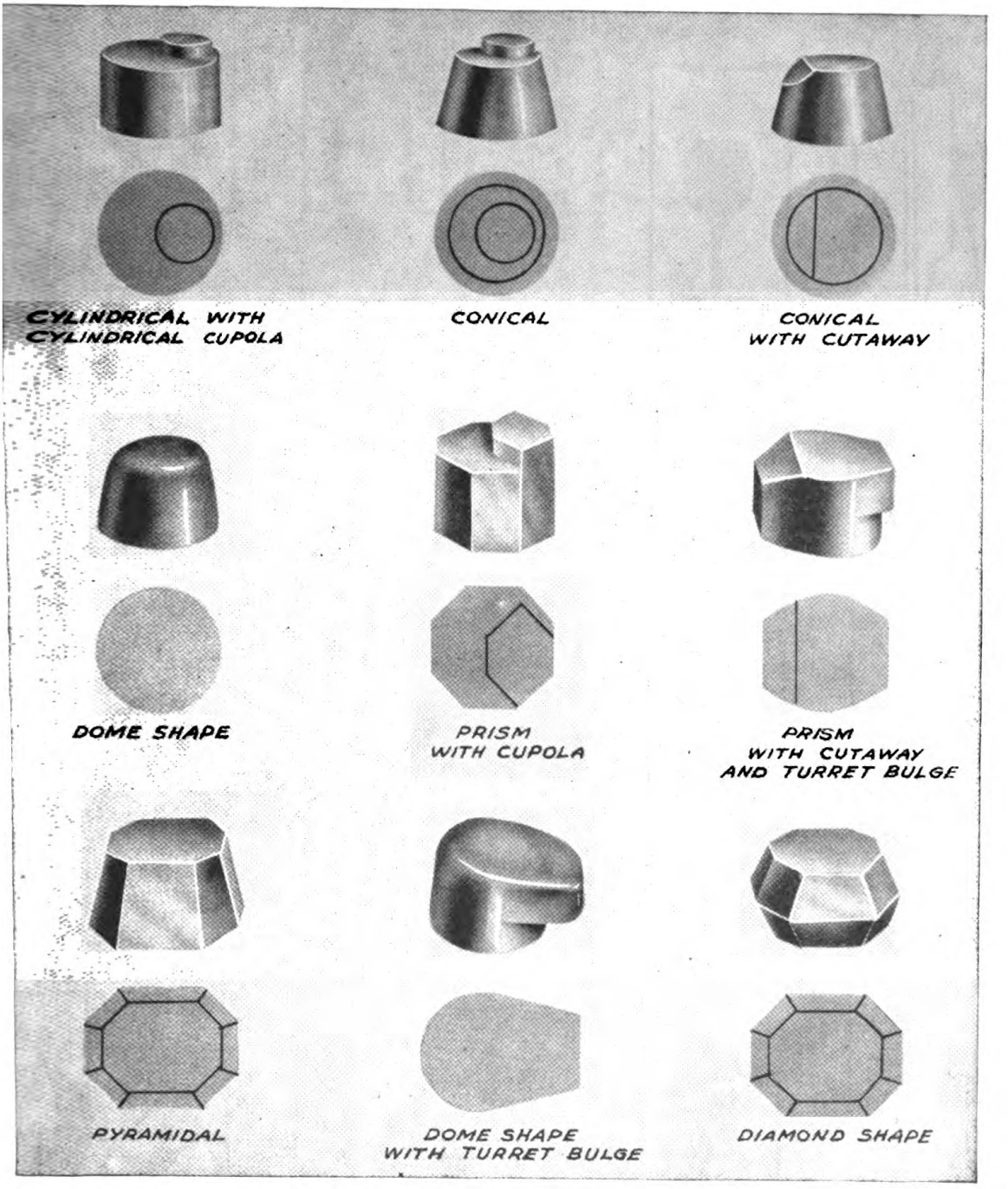



**Figure 280. Turret Shapes.**

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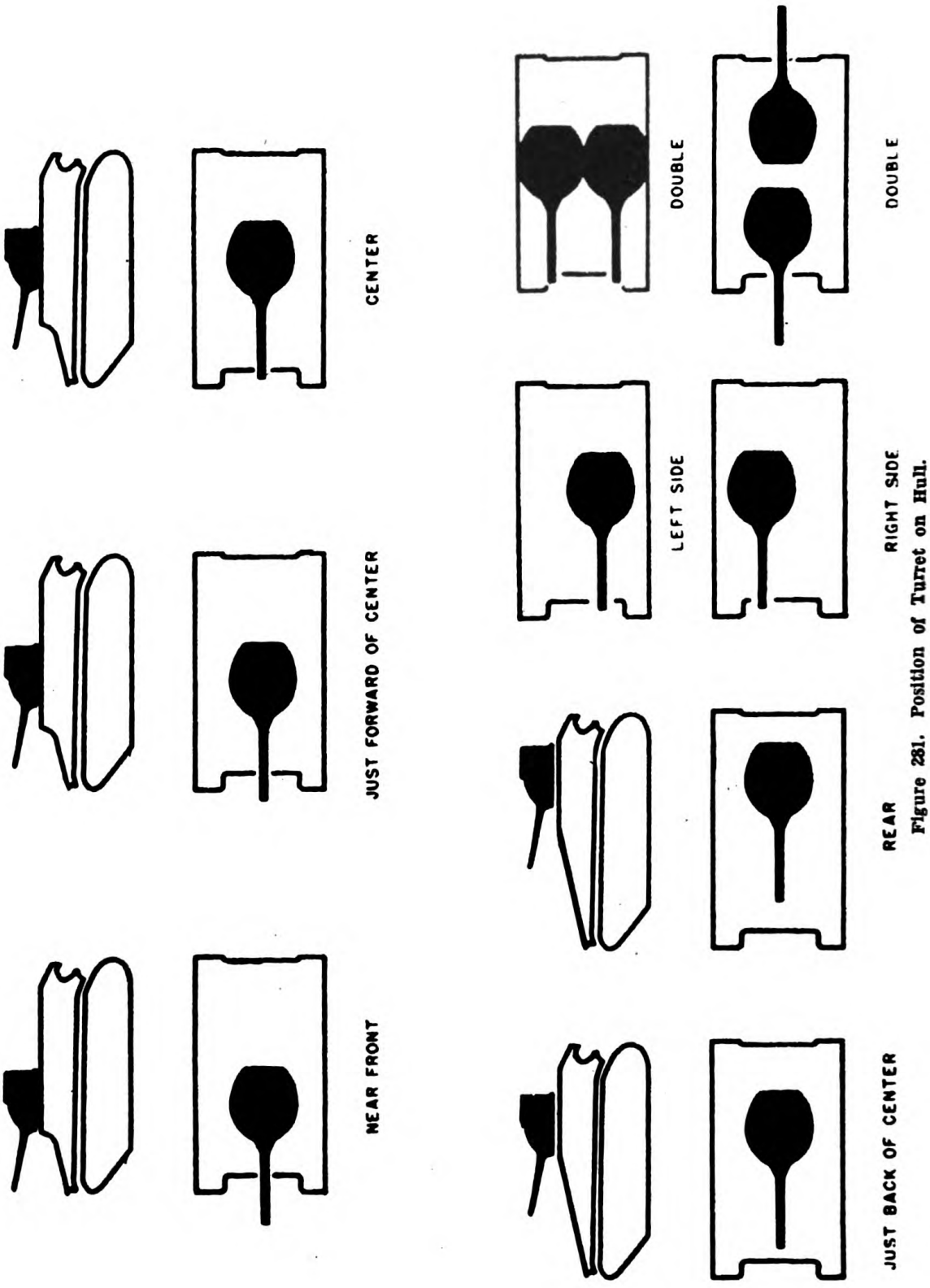



Figure 281. Position of Turret on Hull.

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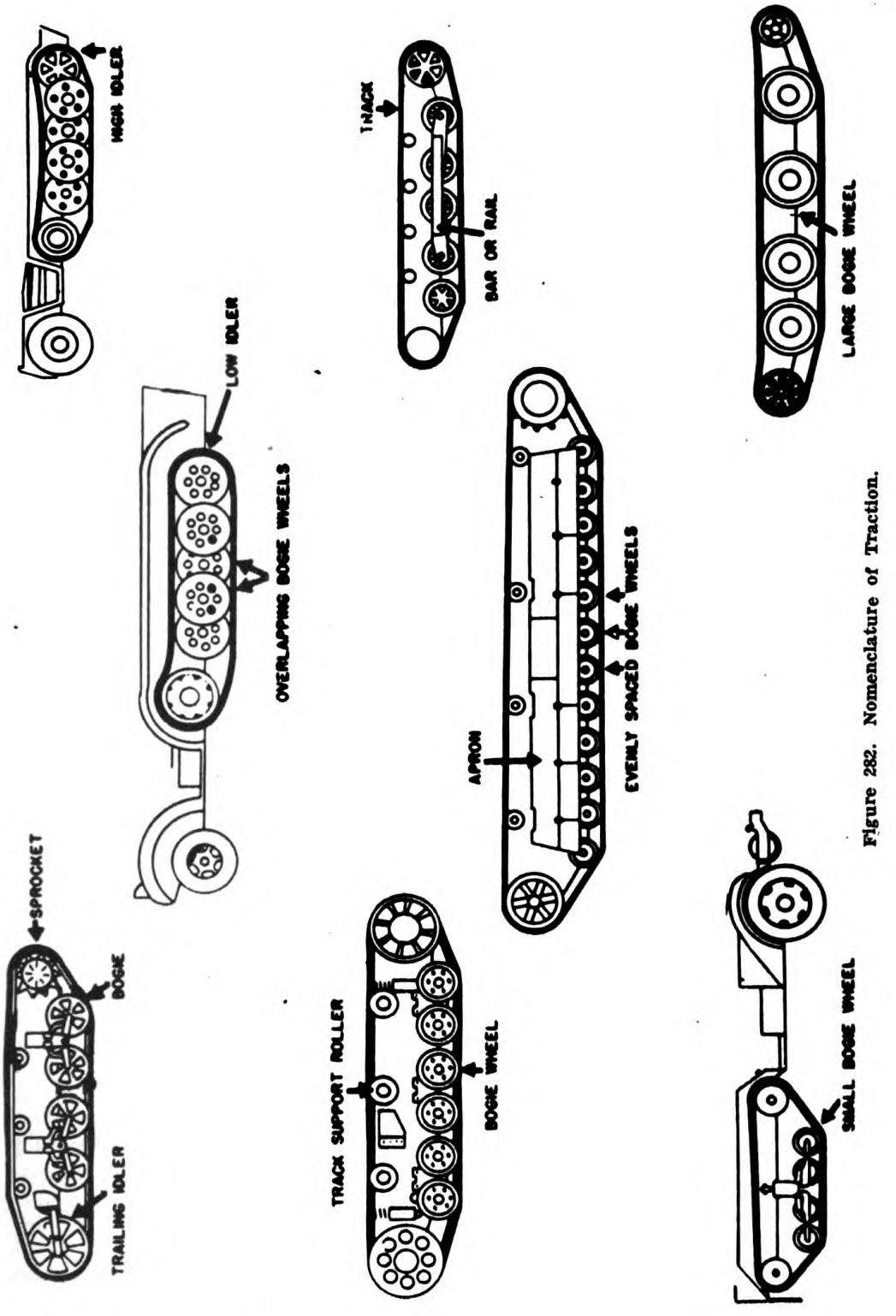



Figure 282. Nomenclature of Traction.

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Ordnanceman, he will never be faced with an enemy armored column breakthrough. If you have the facilities, the following film strips offer good training aids:

(1) FS 11-382 Identification of Tanks
(2) FS 7-78 Identification of German Tanks and Armored Cars, Part No. 1
(3) FS 7-29 Identification of Italian Armored Cars and Tanks, Part No. 2
(4) FS 7-30 Identification of Japanese Tanks and Armored Cars, Part No. 3.

Models of the actual vehicles prove the best training aids. If you cannot purchase them, have one of the interested men make the models.

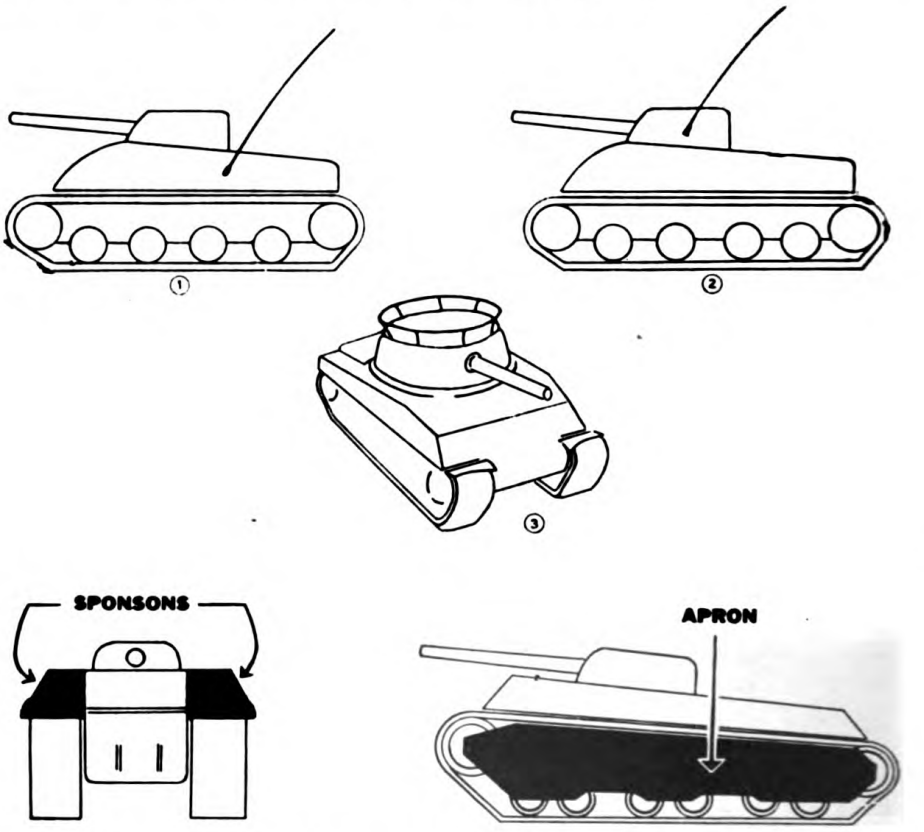



**Figure 283. Recognition of Features. (1) Position of Aerial. (2) Sponsons and Apron.**

The following is a list of our more common vehicles.

A. Wheeled Vehicles
   1. Scout Car, M3A1
   2. Light Armored Car, M8

B. Half-track Vehicles
   1. Half Track Cars, M2, M3, M4, M5, M9A1, and M21
      The main differences are in the size of weapons mounted on the vehicle.
   2. Multiple Gun Motor Carriage, M15 and M16.

C. Full Track Vehicles.
   1. Light Tank, T-9E1 (Airborne)
   2. Light Tank, M5A1
   3. Medium Tank, M4A3
   4. 75mm Howitzer Motor Carriage, M8
   5. 105mm Howitzer Motor Carriage, M7
   6. 3" Gun Motor Carriage, M10
   7. 76mm Gun Motor Carriage, M18
   8. 155mm Gun Motor Carriage, M12

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In using a film strip, it is suggested that you cut your exposure down to one second after the men have had periods when they could observe and study the general characteristics of each vehicle.

The battle importance of the two subjects just discussed cannot be stressed enough by the instructor. Article upon article will be written after the war of the lives lost and materiel made useless simply because the instructor failed to stress battle importance in all subjects we teach our Armed Forces.

## FUNDAMENTALS OF SECURITY AND INTELLIGENCE FOR THE COMPANY COMMANDERS

**Introduction.** Upon the company commander rests the ultimate responsibility for the welfare of his men. All measures inaugurated by him for the physical well-being, morale, and comfort of his command would be nullified unless appropriate steps were taken to insure security.

**The Relationship of Training to Unit Security.** Definition of Security. The term security may be defined as all measures taken by a command to protect it against annoyances, observation, and surprise attacks by the enemy.

The effectiveness of these protective measures are dependent upon unit preparedness, a specific plan of conduct to be followed in case of attack, a strong chain of command and each person's being thoroughly trained in the performance of his duty. All of these factors must be an integral part of troop training. They constitute modes of action which must be learned so thoroughly that they become a part of the individual to such an extent that his reaction is instantaneous and complete.

The speed of a soldier's reaction and the thoroughness with which he has learned to perform his duty may be the means of saving his life or the lives of others in time of emergency.

Therefore, it becomes the responsibility of the company commander not only to inaugurate security measures within his command, but to provide his men with the opportunity for thorough learning and practice of those measures.

Rumor is a security problem with which the company commander must be concerned. Rumors in some form or another are always present. In many instances they are upsetting to the peace of mind and to the morale of the soldier. At times they are accepted so much for fact that they are dangerous to the physical, as well as to the mental, security of the command.

Therefore, the company commander must work constantly to teach his men not to listen to or circulate unverified stories. This is necessary not only because rumors are often upsetting to military morale but because these stories eventually reach the ears of the public and are upsetting to general morale. Furthermore, they may cause friction between various groups and have a detrimental effect on national unity.

**Safeguarding Military Information.** Safeguarding military information must be a major objective in the security and intelligence plan of the company commander. This major objective carries with it a two-fold responsibility for the company commander, since he usually has access to information which is necessary to him in his duties but is not for general dissemination. He must allow information to be given only to those who need it in the performance of their duties. It is also his responsibility to educate his subordinates to the same sense of duty and discretion that he has himself.

**Subversive Activities.** The responsibility of the company commander in relation to security and intelligence also includes that of being constantly on the alert for subversive activities. His men should be taught to watch for people whose actions, speech, or questions seem suspicious. Those persons should be reported immediately to the appropriate commander.

Constant vigilance is the price of unit security. The men must be taught not to accept events or people completely at face value. They must always be made aware of the posssibilities of danger to themselves, to the unit, and to national security.

**Counterintelligence.** Our troops depend greatly upon the factor of surprise to rout the enemy. Surprise is partly dependent upon rapidity of movement and partly upon the effectiveness of counterintelligence measures. The latter aims to de-

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stroy the effectiveness of the enemy's intelligence system. The counterintelligence measures available to a command include:

1. Secrecy discipline.
2. Concealment.
3. Tactical distribution and development of troops.
4. Restrictions on the preparation and use of documents.
5. Signal communication security.
6. Precautions in the movement of troops and individuals.
7. Regulation of activities of newspaper correspondents, photographers, radio news commentators.
8. Visitors.
9. Censorship.
10. Counterpropaganda.

*Secrecy Discipline.*

The commander in his educational program should point out to his men that the enemy tries to collect small facts and dovetail them so that the big fact will emerge. He should stress the fact that much of the information that the enemy gathers is obtained by listening to conversations of service men and families of service men, and by apparently harmless questions.

Many people ask questions because of simply curiosity. They are not personally concerned with the information requested, but they still ask. In many instances, the information given means little if anything to them and when they pass that information on to someone else it may be misquoted and convey an entirely wrong idea to that individual.

Service men tend to answer these careless questions because of their seeming harmlessness. They fail to realize that an enemy agent would use exactly the same technique as the friend or acquaintance, but for an entirely different reason.

Men also answer questions for their family, which they should not answer. There is no guarantee that the information so trustingly given to the family will not be passed on in innocent conversation to enemy sympathizers.

For these reasons, questions are dangerous and the men should be trained to appreciate the danger. Written questions are perhaps slightly less dangerous than those spoken, but only slightly less so. They do give a little more time for considering the answer but only very little more. The reply is more dangerous than the reply to the spoken question because it is in writing. Telephoned questions are most dangerous of all. The fact that the conversation is telephoned gives a false sense of privacy. *Any* telephone line can be tapped and every word spoken over that line overheard. People near the speaker or close to the telephone booth from which he is speaking may overhear him even though he is not conscious of the fact that it is possible.

The company commander should call these points to the attention of the men frequently, offering explanations and illustrations demonstrating the danger of careless questions and answers. Here will be stressed the danger of discussing military information in the presence of strangers, either military or civilian.

**Censorship.** Censorship is a necessity during war time. The enemy may be assumed to have a highly organized system of espionage which looks for and pieces together bits of military information.

Most breaches of security found by censors are not intentional. They are caused by the soldier's ignorance of what he is *not* to write about or from faulty judgment as to what may be included without a breach of security.

This places another training responsibility upon the company commander. If his men have learned the necessity of safeguarding military information, and the type of information they should not disclose while in this country, they will not be so likely to commit errors against security when they are overseas.

Intentional breaches of security are made almost always because the individual wishes to appear clever. Perhaps the soldier tries to find some means of letting his family know where he is that will pass the censor. If he is successful, his family will think he is very clever, but neither he nor his family are considering that very possibly his action has endangered a whole unit.

Sometimes soldiers are influenced by press associations, newspapers, and radio stations to speak or write for the public. This often results in the publicizing of

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information which the soldier is not authorized to give. He should have learned that it is necessary to have official clearance on any statement to be made to the public.

In units where censorship is actually in use, and the men continue to break censorship rules, a "censor's diary" might be used as a means of educating the men on their mistakes. This "diary" would consist of censored portions of letters posted on bulletin boards with brief comments as to why they were censored. Every effort, however, should be made to keep the identity of the writer from the extract. For this reason certain precautions should be taken, posted copies of extracts should be typed and personal and family matters should not be published. If the men can see samples of actual mistakes which have been made together with the reason that it was a mistake, they will have a much clearer idea of what should *not* be written in letters.

In a major emergency, censorship applies to personal communications, photographs, press dispatches, newspapers, journals, magazines, books, pamphlets, radio broadcasts, and all communications, no matter how transmitted. Private communications should follow authorized channels. Civil postal service is forbidden in combat and communications zones.

Information concerning any of the following items is considered useful to the enemy and must not be included in any private correspondence or private records during a war:

1. Strength, efficiency, morale, or organization of our forces.
2. Location or movement of any naval, military, or air force organization or detachment, and the presence or absence of reinforcements.
4. Distinguishing signs used for identification of organizations, their transportation, or baggage.
5. Plans and forecasts or orders for future operations whether known or surmised.
6. Use, condition, or probable extension of roads, railways, or other transportation facilities.
7. State of the maintenance of services, including any reference to the reserves.
8. Position or description of billets, bivouacs, or camps.
9. Casualties, before official notification.
10. Results of enemy action, which, if published, would tend to encourage him, or to cause despondency in our own people.
11. Criticisms and statements which would tend to bring our own forces or those of our allies into disrepute.
12. Unverified reports of atrocities.

It is also the responsibility of the commanding officer to acquaint troops with the fact that communications to the press may be only through authorized channels and that military personnel are not permitted to write advertisements or letters for publication inviting correspondence with strangers.

**Codes.** The use of ciphers, codes, and shorthand in private correspondence is forbidden. Any attempt by a soldier to inform his family of his location by the use of certain pre-arranged words or signs constitutes a code and is strictly against security regulations. Violators of these security regulations are subject to penalties ranging from reprimand to courts-martial.

**Restrictions on Documents.** Military personnel must be acquainted with the classification of military documents.

When material is classified as secret, confidential or restricted, it is done for good reasons and certain precautions must be taken to prevent the circulation of that material among members of military personnel who do not need it in the performance of their duty. Troops should not only be taught the significance of these classifications and the precautions for their protection, but also a proper respect for them as a means of maintaining security.

*Security and Intelligence Measures in the Combat Zone.* Each man should know and understand the general characteristics of a well-rounded security plan and the part that he, as an individual, has in that plan. There should be established a system of observers and a means of signal communications in order that prompt warning of the presence, disposition and intent of the enemy may be discovered. It is the responsibility of a company commander that there is for his

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unit an efficient security plan which will provide for the safety and security of his command. The education and training of his men is essential for implicit obedience to directions and for the maintenance of secrecy and vigilance. For the various phases of security measures (reconnaissance, camouflage, security, detachments, scouting and patrolling and defense against chemical attack, etc.), the reader is referred to other sections of this book under those headings. The company commander must be ready to change his course of action instantly when events warrant it. The efficiency of his plan, however, is dependent upon the state of training of his men, their alertness and their instant obedience to a pre-arranged course of action. When attacked at a halt, all available fire power will be brought to bear. Troops in a concealed location should not fire on enemy aircraft unless actually attacked. Where enemy fire power is superior, immediate steps should be taken to evacuate the area.

In general, the responsibility of the company commander in relation to security and intelligence follows two general trends:

1. An efficient security plan which will provide for the safety and security of his command.
2. The education and training of his men in implicit obedience to directions, in the maintenance of secrecy discipline, and in vigilance for their own safety, and that of the unit.

## SIGNAL COMMUNICATIONS

**Choice of Means.** No one method of signal communication possesses all the desirable military characteristics of reliability, security, flexibility and speed; several means of communication must always be provided.

The choice between a written message and a telephone call should be based on consideration of the following factors:

Need for record
Need for discussion
Need for speed
Need for secrecy
Availability of facilities
Traffic load on available facilities.

If the result desired can be obtained as well by means of a message as compared to telephone, write the message.

Due to the normal scarcity of technical communication facilities in field operations it will usually be necessary to restrict use of the wire telephone to those cases where direct personal discussion between commanders and senior staff officers is necessary. Reduction of messages to writing will usually reduce misunderstanding and misinterpretation.

Improper use of radio telephone has been the greatest single cause for combat inefficiency due to signal communications. It is imperative that anyone who holds radio telephone conversations be familiar with the following points:

1. Use of proper radio telephone procedure.
2. Pre-plan the content and wording of each transmission.
3. Avoid use of plain language for places, units, or names, or official titles.
4. Employ authentication of other party to the conversation.

The fundamental requirements of military signal communication are (1) reliability, (2) flexibility, (3) security, and (4) speed.

Reliability is paramount. The conflicting requirements of speed and security vary according to circumstances. Staff officers and signal communication personnel must be guided by general principles, applied with full appreciation of existing circumstances, rather than by rigid regulations. Reasonable security at all times should be the goal. In general, in a strategic situation some speed may be sacrificed to meet the greater secrecy requirements, while in tactical situations secrecy is often of secondary importance and may be sacrificed to meet the greater speed requirements. Various cryptograhic devices and methods are available to meet both situations.

Preparation of Messages. Since the writer does not ordinarily know by what means a message will be transmitted, every message should be prepared in the briefest practicable telegraphic form to insure speedy transmission.

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All messages are classified by the originator. In tactical operations, actual or simulated, all messages not classified and marked "Secret" will be regarded as "Confidential" but need not be so marked. Messages classified "Secret" should show on the face of the message the authority for such classification.

**Writing Messages.** Example:

THESE SPACES FOR MESSAGE CENTER ONLY

(M) TIME FILED | MSG CEN No. | HOW SENT

(O) (1) Priority — PRECEDENCE

**MESSAGE** (SUBMIT TO MESSAGE CENTER IN DUPLICATE)

No. (2) 19 DATE (3) 10 October 1944

To (4) C. O. 252 M. M. Co.

(5) Move your company at 2000 hours tonight from present location to bivouac in woods 2 mi. E. CORINTH on N. side of Hiwy 13. Move via Hiwy 8 to JEFFERSON then Hiwy 13 to CORINTH Send recon. party to E side CORINTH immediately to meet me.

(6) C. O. 85 ORD BN. OFFICIAL DESIGNATION OF SENDER — (7) 1400H TIME SIGNED

R. Jones, Lt. Col Bn. C.O.
SIGNATURE AND GRADE OF WRITER

**Figure 285. Sample Message.**

(M) Leave blank. For Message Center use.

(O) Leavy blank. For Operator's use.

(1) Precedence of transmission of messages. Routine messages transmitted in the order received. Precedence may be abbreviated or spelled out.

Messages marked for special precedence of transmission are sent in the order shown in TABLE NO. 1.

(2) Enter writer's message serial number for his reference.

**Table 1. Precedence of Transmission of Messages.**

| Precedence Written | Abbreviated | Sequence | Usual content |
|---|---|---|---|
| URGENT | O | Sent at once, interrupting all others. | Enemy contact reports. Immediate operations. Flash messages. |
| OPERATIONAL PRIORITY | OP | Sent after Urgent messages. | Operations messages including aircraft movements. NOT for ordinary troop movement messages. |
| PRIORITY | P | After Urgent and Operational Priority Messages. | Operations messages. Other important messages. Highest administrative message precedence. |
| ROUTINE | R (1) | Sent after Urgent Operational Priority and Priority Messages. | Normal messages. |
| DEFERRED | D | Sent after all other messages, but not longer than 24 hours after filing. | Messages not requiring immediate delivery; 24-hour delivery assured. |

(1) No marking on the Msg.

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(3) Enter date message is written; day, month (year).

(4) Enter after "To": CG or CO and unit. NOT staff section or personal name.

(Staff reference may be indicated in body of message (not at beginning or end) IF ESSENTIAL for delivery.)

(5) Text of message. Be brief, concise, complete, and legible. Use only authorized abbreviations (FM 21-30 and school memorandum).

(6) Enter CG or CO and unit NOT staff section or personal name. (Staff reference may be indicated in body of message (not at beginning or end) IF ESSENTIAL for delivery.)

(7) Enter time in 24-hour clock system and time zone suffix.

(8) Signature of writer with rank and staff duty. (For reference only; not transmitted.)

**Use of Cryptograms.** For a complete discussion, see AR 380-5 and FM 24-5. All messages to be transmitted by radio, or other means when danger of hostile interception exists, are cryptographed. Exceptions are:

When the tactical situation is such that time cannot be spared for cryptographing; when the information to be transmitted, if intercepted by the enemy, cannot be acted upon in time to influence the situation. Then the commanding officer or his authorized representative may order the transmission of radio messages in plain language. Such written messages will be marked "Send in clear" over the signature of the commanding officer or his authorized representative. Responsibility for transmission by radio telephone in the clear rests with the person making the transmission.

Radio. Radio, when properly used furnishes a valuable means of signal communication. It is used for both tactical and administrative messages by all units of a modern army. It is an essential means for highly mobile elements such as aircraft and armored units, and is especially applicable to motor movements and fast moving situations.

Radiotelegraphy is less subject to static interference than radiotelephony, and has greater range with a given amount of power.

Radiotelephony is used when person-to-person contact is required and when secrecy is relatively less essential. By using prearranged voice codes in radiotelephony secrecy can be maintained.

Proper use of radio as a means of communication requires a high state of training. It is imperative that communication exercises be conducted for staff officers and signal elements prior to combat in order to insure efficient operation of radio communication.

The range and quality of radio communication are affected, to a varying degree, depending upon the frequency used, by the weather, by the nature of the intervening terrain or obstacles, by the time of day, by the season of the year, and by magnetic disturbances.

Radio stations are readily portable, and may be quickly placed in operation. Radio stations may be operated from moving vehicles. The approximate transmission range of a radio station may be limited in order to decrease the possibility of enemy interception and interference with other friendly stations.

Radio intelligence is the enemy's best method of obtaining information of our plans, and operations by:

Intercepting our messages, locating our radio transmitters and thereby approximately locating command posts and other important installations, thus obtaining information as to the strength, constitution, and capabilities of our forces.

Enemy intelligence activities cited above can be largely counteracted. These counter-measures often limit our use of radio communications. These measures include:

(1) Maintaining radio silence at appropriate times.

(2) Maintaining a normal volume of traffic.

(3) Enforcing rigid radio discipline.

(4) Enciphering or encoding messages. However, code and cipher systems can be compromised by too frequent use and too large a volume of traffic.

(5) Using authenticator systems to identify stations and to establish authenticity of messages.

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(6) Locating radio transmitters at a distance from command posts and other installations served, using remote control from the command posts.

(7) Safeguarding frequencies and call sign assignments, and changing them frequently.

(8) Providing alternate frequencies and shifting frequencies when a particular frequency is jammed.

(9) Using radiotelegraph in preference to radiotelephone whenever both are available.

(10) Establishing dummy stations.

(11) Transmitting false messages.

Radio equipment is complex and fragile. It requires constant maintenance and intelligent care.

Operating and maintenance personnel require extensive specialized individual training.

Necessary crytographing and decryptographing of messages and use of authenticators delay transmission of messages and do not provide absolute security. Given sufficient time and volume of messages, any code or cipher system can be broken.

False messages transmitted by the enemy are designed to create confusion and cause action to his advantage.

Enemy action creating interference or "jamming" on our frequency channels denies us the use of radio communication.

## VOICE RADIO PROCEDURE

**Enunciation.** Thorough tests have shown that the advice, often given formerly, to use a normal tone in speaking into the microphone, is wholly wrong. The voice should be raised as much as possible without straining or distorting it. To be clearly intelligible, the spoken sound must be louder at the face of the microphone than surrounding noises. The amplifier will raise the voice level, but only to the same degree that it raises all other sound reaching it. It remains up to the speaker to make his voice the loudest of those sounds. Speech should be as distinct as possible. Normal pronunciation should not be emphasized, with "er's" or "uh's" between words. In speaking a complete sentence, use the natural sentence-rhythm and intonation, but do not drop the voice.

Hand-held microphones should be held directly in front of the mouth, (that is, so the operator speaks into the microphone rather than across it) and as close to the mouth as possible without interfering with the movement of the lips. The microphone should actually touch the lips lightly. At this point the voice is loudest; and the operator's face cuts off some at least of the competing noise.

**Phonetic Alphabet.** When necessary to identify any letter of the standard alphabet, the phonetic alphabet is to be used. This alphabet is listed below:

| Letter | Spoken as— | Letter | Spoken as— |
|---|---|---|---|
| A | ABLE | N | NAN |
| B | BAKER | O | OBOE |
| C | CHARLIE | P | PETER |
| D | DOG | Q | QUEEN |
| E | EASY | R | ROGER |
| F | FOX | S | SUGAR |
| G | GEORGE | T | TARE |
| H | HOW | U | UNCLE |
| I | ITEM | V | VICTOR |
| J | JIG | W | WILLIAM |
| K | KING | X | XRAY |
| L | LOVE | Y | YOKE |
| M | MIKE | Z | ZEBRA |

Difficult words will be both spoken and spelled. Example "Catenary—I spell—Charlie Able Tare Easy Nan Able Roger Yoke—Catenary."

**Pronunciation of Numerals.** When figures are transmitted by radiotelephone the following rules for their pronunciation will be observed:



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| Numeral | Spoken as— | Numeral | Spoken as— |
|---|---|---|---|
| 0 | ZE-RO | 5 | FI-YIV |
| 1 | WUN | 6 | SIX |
| 2 | TOO | 7 | SEVEN |
| 3 | THUH-REE | 8 | ATE |
| 4 | FO-WER | 9 | NINER |

**Use of Numerals.** Numbers are transmitted as numerals or digits except in the case of an even hundred or thousand, when the word hundred or thousand is used. Examples.

| Number | Spoken as— |
|---|---|
| 44 | FO-WER FO-WER |
| 80 | ATE ZE-RO |
| 136 | WUN THUH-REE SIX |
| 500 | FI-YIV HUN-DRED |
| 1478 | WUN-FO-WER SEVEN ATE |
| 7000 | SEVEN THOW-ZAND |
| 16000 | WUN SIX THOW-ZAND |

**Statement of Time.** a. Time will be stated in exactly four figures utilizing the 24-hour clock. The hour will be stated by the first two figures and the minutes by the last two figures. Midnight is 2400 of present day, or 0000 of following day. However, 2400 is seldom used. The last hour of the 24-hour clock day begins at 2300. The last minute of the last hour begins at 2359 and ends at 0000, which is the beginning of the first minute ending at 0001 of the first hour of the next day.

b. Examples of statement of time:

| Time | Statement |
|---|---|
| 0000 (midnight) | Zero zero zero zero |
| 0920 (9:20 A M) | Zero nine two zero |
| 1200 (noon) | One two zero zero |
| 1643 (4:43 P M) | One six four three |
| 2347 (11:47 P M) | Two three four seven |

**Component Parts of Message.** Form. The call of a radiotelephone message may take one of the following forms:

Case I—full call

| | Examples |
|---|---|
| Call sign receiving station | Able Baker |
| This is | This is |
| Call sign station calling | Peter Three |

Case II—abbreviated call

| | Examples |
|---|---|
| This is | This is |
| Call sign station calling | Peter Three |

Case III—link call (3 letter call)

| | Examples |
|---|---|
| Link call sign | Able Baker Charlie |

Precedence. Predecence designations are seldom used in voice (R/T) procedure, but if used will be spoken in clear as the last part of the call. The terms in order of importance are:

1. Urgent
2. Operational Priority
3. Priority

## THE TEXT (Subject Matter)

The text (subject matter) may consist of plain language, code words, or figures. If it is necessary to spell out a word, the phonetic alphabet will be used.

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## THE ENDING

Every transmission will end with one of the following procedure words:

| Word or phase | Meaning |
|---|---|
| a. Over | My transmission is ended and I expect a response from you. |
| b. Out | This conversation is ended and no response is expected. |

Example 1

| | |
|---|---|
| Call | Shamrock this is Domino. |
| Text (subject matter) | Where are tanks? |
| Ending | Over. |

**Procedure Phrases.** It is inadvisable to lay down precise wording for all procedure phrases likely to be required in radiotelephone work. However, the following have been adopted:

| Word or phase | Meaning |
|---|---|
| Roger | 'I have received all of your last transmission.' |
| Acknowledge | Used by originator: 'Let me know that you have received and understand this message.' |
| Wilco | 'Your last message (or message indicated) received, understood, and (where applicable) will be complied with.' |
| How do you hear me? | How well can you hear me? |
| Speak slower | You are speaking too fast. |
| Wait | If used by itself: 'I must pause for a few seconds.' If the pause is to be longer than a few seconds, 'Wait' 'Out' should be used. If 'Wait' is used to prevent another station's transmitting it must be followed by the ending 'Out.' |
| Say again | 'Repeat.' |
| I say again | 'I will repeat.' |
| Verify | 'Check coding, check text (subject matter) with the originator and send correct version.' |
| Message for you | 'I wish to transmit a message to you.' |
| Send your message | 'I am ready for you to transmit.' |
| Read back | 'Repeat all of this message back to me exactly as received after I have given "Over."' |
| That is correct | 'You are correct.' |
| Words twice | a. As a request. 'Communication is difficult. Please send every phrase (or every code group) twice.'<br>b. As information. 'Since communication is difficult every phrase (or every code group) in this message will be sent twice.' |
| Correction | 'An error has been made in this transmission (or message indicated). The correct version is———.' |
| Wrong | 'What you have just said is incorrect. The correct version is———.' |
| Groups | 'The number of groups in this code or cipher message is———.' |
| Break | 'I hereby indicate the separation of the text from other portions of the message.' To be used only when there is no clear distinction between the text and other portions of the message. |

When both stations are in good communication, all parts of the transmission are made once through.

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Example

Station AB wishes to transmit a message to station P3:

AB transmits:
Peter Three—This is—Able Baker—Message for you—Over.

P3 transmits:
Able Baker—This is—Peter Three—Send your message—Over.

AB transmits:
Peter Three—This is—Able Baker—Convoy has arrived—Time 1630—Over.

P3 transmits:
Able Baker—This is—Peter Three—Roger—Out.

When words are missed or are doubtful, repetitions will be requested by the receiving station before receipting for the message. The procedure phrases "say again" and "I say again" used alone or in conjunction with "all before", and "all after," ".....to....." and "word after" will be used for this purpose.

**Acknowledgement of Messages.** "Wilco" shall be used in response to the procedure word "acknowledge" in the text of voice messages, or may be used to acknowledge receipt and capability to comply with an order received even though instructions to acknowledge were not included. As the meaning of "Roger" is included in that of "Wilco", the two words are never used together.

A station is understood to have good readability unless otherwise notified. Except when making original contact, strength of signals and readability will not be exchanged unless one station cannot clearly hear another station.

The response to "How do you hear me" will be a short concise report of actual reception, such as "weak but readable," "strong but distorted", etc.

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## ANNEX 1

## PERSONAL OBSERVATIONS IN EUROPEAN THEATER OF OPERATIONS (AUGUST, 1944)

By Col. Willis R. Slaughter, Commandant, The Ordnance School

**General.** Training is a problem which is vital to Ordnance officers in the field because they realize that to get a job done—notwithstanding the mechanization of todays armies—the human element remains of vital importance. The right man in the right place is essential, and the right man is one who has been properly trained for the particular job. In addition he must have the perseverance and tenacity to work unbelievable hours, to endure hardships, and to return from each mission with high morale.

### ORDNANCE SERVICE IN THE FIELD

**Combat.** The amount of combat which ordnance troops are likely to encounter varies widely with the tactical situation. Colonel —— reports that ordnance units in —— Corps were not engaged in any direct combat with enemy forces. They had been bombed and strafed, but losses in general were very light. On the other hand, Colonel (assigned to another Army) —— reported that casualties in Ordnance had been comparatively heavy. Ordnance troops should be designated as combat troops. There is always a strong possibility of ordnance units encountering direct combat, and they should be trained to meet this possibility. A few specific examples are given below.

The —— Ordnance Battalion, attached to the —— ESB (Engineer Special Brigade) landed on the beach at H+45′. The men fought as infantry for a considerable period of time and suffered numerous casualties.

One town was a particularly dangerous location due to the fact that one bridge carried all supplies and made a serious bottleneck. Ordnance guides stayed on the job at a confusing road intersection to get convoys through severe bombings although many men were killed within a distance of 200 feet.

A heavy maintenance company was delivering tanks and armored cars in a certain area. Passing through one village, the men were told that there were about 100 Germans in the nearby woods. They manned the vehicles they were delivering and captured 3 officers, 120 enlisted men, and a British pilot who was a prisoner of the Germans.

One depot company, part of a maintenance battalion, was on the way to the front when it was ambushed. The company lost 7 killed and 20 wounded but fought off the attack and lost no equipment.

Members of the —— Ordnance MAM Company encountered enemy action twice. Three men were sent into —— before the entire city was taken to look over some vehicles which were to be used for hauling prisoners. The men found themselves in considerable small-arms fire. On the other occasion, an advance guard was sent forward to hold an area which had been previously reconnoitered for a shop area. While the guards were there, the enemy launched a strong counterattack and the men found themselves between the enemy and our own infantry troops. The guards attached themselves to an infantry battalion and fought with them.

Evacuation companies are doing an excellent job under fire. They have made a remarkable showing in recovering damaged materiel under most adverse conditions. Speed is essential not only to get the equipment repaired and back into use as quickly as possible but also to keep the enemy from recovering and using it. A record was probably set when a tank was recovered, given complete 4th-echelon maintenance, and returned to the same fight.

A patrol can slip quietly onto a battlefield for reconnaissance, but there can be no secrecy when Ordnance goes in with a 40-ton tank transporter. Much of the evacuation must be done at night working in complete darkness. Directions often are vague, landmarks scarce, and the tanks hard to locate. Frequently they have been booby-trapped by the enemy.

**Organization.** *Mobile Tire-Repair Units.* It has been necessary to organize mobile tire-repair units, each consisting of 1 officer and 14 men. These units have



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been an unqualified success and will average between 60 and 70 spot and sectional repairs per day. They consist of one officer, two staff sergeants, three tec 4's, five tec 5's, and four basics. All of these men should have SSN 240 classification and should all be able to drive trucks.

*Salvage Companies.* One officer recommends that an ordnance salvage company be established which would receive from collection points equipment which could not be repaired, strip it down, reclaim repairable parts and turn them over to a depot company for reissue, and scrap the other parts.

**Liaison.** Between Ordnance and other branches an informal but effective liaison is maintained. Most of the work between them is carried on in the form of telephone conversations and informal correspondence. Between US Ordnance and Allied Ordnance there are several British liaison officers working with the American forces. Between the communications zone and army headquarters liaison is excellent. Liaison work is carried on to a great degree between ordnance units and the units being served. In general, all the observations on liaison work indicate that it is being performed satisfactorily.

**Maintenance Echelons.** Lower echelons do a great deal of damage to materiel by trying to do higher-echelon work. This has been found especially true in antiaircraft equipment, general instruments, and watches.

**Shop Operation.** Special loose-leaf books have been issued to maintenance companies, where they may keep a register of job orders, etc., using a separate page or pages for each organization supported. An indexing system in this book makes these pages available for ready reference. Files are maintained for pertinent data of each unit supported, showing types of major items, existing shortages, action taken to fill shortages, condition of materiel. etc. When an organization moves the files are forwarded through Ordnance channels to the maintenance company supporting the organization in the new location. Platoon leaders and sergeants should constantly spot-check vehicles and repair work to make certain jobs are turned out satisfactorily. Excess pool vehicles and supply vehicles for replacement should be maintained equally as well as organizational vehicles. If they require repair, they should be allotted to the platoon having the least work.

**Contact Parties in—Corps.** Maintenance units of the army ordnance battalion in direct support of corps are given a list showing the troops for which they will provide maintenance. Each ordnance company sends a contact party to the using units once each 24 to 48 hours. These contact parties deliver previously ordered supplies, ascertain maintenance and supply problems of the unit, instruct the unit in the correct Ordnance procedure, and have work parties sent to the unit when necessary. In general, forward, and intermediate maintenance companies keep contact parties on the road. These parties consist of one man from each section. They carry a small stock of spare parts and cleaning and preserving materials. After combat troops advance through an area, each forward battalion maintains four road reconnaissance patrols during all daylight hours, giving priority to main and secondary roads in the corps area they are supporting. They pay particular attention to cities and towns. Each of these parties uses a vehicle carrying red and yellow markings, "Ordnance Recovery Patrol."

**Unit Inspections.** When combat units are pulled out of the line for a rest, complete inspection and rehabilitation of the ordnance materiel is made. It requires from 2 to 2½ days to inspect a battalion. Usually the best mechanics should be the inspectors, and they should also inspect the work upon its completion. The theory behind this is that the other mechanics will soon come up to their standard. In addition to the work order, the inspection sheet with the name of the inspector should be at the job. When conducting an inspection, the crew should not be asked if everything is functioning satisfactorily and its word accepted. All vehicles and weapons, including fire control equipment and accessories, should be carefully examined.

**Recovery and Evacuation.** Divisions recover and evacuate materiel direct to the division collecting point. Where possible, corps troops collect and evacuate direct to an army collecting point. Where necessary, army ordnance assists either the division or corps troops in this mission. Army Ordnance units evacuate damaged materiel from an army collecting point either to a maintenance unit for repair or to base battalions for salvage. Where major items cannot be repaired they are

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cannibalized completely and the parts renovated or repaired and returned to stock in an ordnance depot company. At this time evacuation is not performed as well as it should be. It should receive more attention during the training period. Base shops may have to go farther forward than originally contemplated, owing to difficulties of transportation.

**Reclamation.** There are not sufficient units, and personnel is not adequately trained for the enormous problem of collecting evaluating, and reclaiming materiel from the battlefield.

In rapid warfare the efficiency of a maintenance unit is reduced about 30 percent. There is no time for extensive repairs while moving frequently and rapidly, and it is necessary to use unit replacements. On the other hand, all maintenance personnel tend to discard serviceable parts in favor of new parts. This tendency must be guarded against. Despite this, reclamation plays a large part in operations of forward ordnance units and one army reports that over and over again reclamation was their only salvation.

Reclamation plays a larger part in the operations of base installations. Parts discarded in the field by forward ordnance units must be reclaimed to avoid critical shortages.

**Artillery.** *Inspection Method.* Gun tubes are condemned by star gaging and bore impressions. This method of condemning tubes has proven satisfactory although there is a shortage of star-gaging sets.

*Recoil Mechanisms.* Hydropneumatic recoil mechanisms were formerly being serviced beyond the capabilities of units in the field; as a result, many mechanisms were rendered unserviceable needlessly. These units do not have the proper tools, and serious damage sometimes results. The condition was so prevalent that Technical Bulletin No. 13 dated 9 March 1944 was given field circulation, calling attention to limits of repair or adjustment in the various echelons.

*Malfunctions.* Most artillery malfunctions do not result from carelessness but rather from a lack of adequate training which leads to improper assembly after cleaning. First- and second-echelon maintenance has been neglected, and extensive courses on preventive maintenance including assembly and disassembly have been given to alleviate this.

**Communication.** Each maintenance company should train at least two men in the operation of field telephones, reception and sending of messages, installation of phones, and detection and repair of line breaks.

Ordnance is intimately concerned with combat losses of equipment and replacements of materiel and ammunition and must act promptly. Telephone service is not satisfactory. A radio net is necessary.

## MATERIEL

**Development.** Differences in terrain and combat conditions are responsible for the troops submitting ideas for changes in standard weapons and ammunition. There is a constant stream of suggestions, and these must be tested and developed. When the field commanders are behind them, the tests must be carried to completion. The training of officers should be versatile enough to enable them to do testing work in the field. Some means of following up these ideas is needed, since many of them could probably be used in other theaters later on. Perhaps arrangements could be made so that a dossier containing all information on any idea not developed to completion in the field would automatically be forwarded to the Research and Development Service for full investigation.

**Cause of Failures.** One of the chief maintenance problems is caused by giving troops equipment on which they have not been trained and expecting them to operate it at once. Unfamiliarity with equipment causes much damage and increases the maintenance. It is a G-3 problem to prevent this, but Ordnance gets the damaged equipment to repair irrespective of the cause. There was general agreement that misuse of equipment and lack of preventive maintenance were the greatest causes of materiel failures; design weakness was not considered a serious cause.

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## TRAINING

**Training Conditions.** Units should receive as much training under actual field conditions as possible. It was continually emphasized that those troops who had participated in maneuvers and had lived for extended periods in the field were much better prepared to perform their mission than those who had not been so trained. Ordnance troops have received too little technical training as a unit. The stress put on military training must not be allowed to mitigate technical training which is always of the utmost importance. While in training, battalions and groups should function as they are required to in an active theater. Officers and key enlisted men must be given responsibility for their job and then be allowed to operate with that responsibility.

**Adaptability.** Group and battalion headquarters should be trained so that they will be in a frame of mind to immediately operate under the existing SOP of the theater to which they report. Don't allow them to have the idea that there is only one way to do a job—that they must operate in the same way they did in the US. The reasons behind the theater SOP will soon become apparent.

**Repetition.** New troops going into combat tend to forget many things they have been taught. They seem to feel that rules about inspection and other matters do not apply to them. It is therefore advisable to reiterate the necessity for repetition in training. Procedures must be repeated until they become virtually automatic. The standards of personal cleanliness must be maintained. When a man becomes slovenly in his personal habits, the quality of his work may deteriorate.

**Equipment.** Students should not always have all the equipment or accessories for ideal working conditions. Train them to use their ingenuity and to improvise. They must be taught to use the articles at hand. In supply training, for example, don't always use a standard type of truck—use flat tops, vans, 2½ ton 6 x 6's, 4-ton 6 x 6's, 1½ ton 4 x 4's, weapon carriers, and even half-tracks if they are available.

**Shop Administration.** Officers lack training in shop administration, operation, and lay-out. Mechanics are good, but many officers cannot efficiently organize and run a shop.

**Cross Training.** The need for more cross training was emphasized at a number of places. Officers should be trained to know and understand the work of all platoons and sections since replacements on short notice are sometimes necessary. Maintenance units should be prepared to take on any type of work. This includes work for the Navy, our Allies, and on enemy equipment.

**Automotive.** *Maintenance.* Most mechanics feel they have received proper training. Many men with no civilian experience as mechanics and no aptitude therefore cannot be made into good mechanics no matter how much training they receive. Such men should be transferred to other types of work. More training is needed on DUKW parts. Training of mechanics should be as versatile as possible For example, one base automotive battalion had to overhaul 1,500 Navy Diesel engines which had been immersed in salt water and had sand inside them. More mechanics should be trained on Diesel engines because in addition to the naval work there is a vast amount of maintenance work necessary on prime movers, cranes, generators, etc.

*Driver Training.* Every man in an ordnance maintenance unit should be trained to drive all types of ordnance vehicles. Abnormal transmission replacements have been necessary because men throughout the Army still use the engine and power train as a brake. Drivers must be trained to avoid excessive down-shifting.

**Artillery.** There are not enough good artillery maintenance officers. Officers and men should be trained where guns are fired if possible. Let them see guns fired to destruction. (The Research and Development Center is ideal for this.) This could be supplemented with motion pictures, and samples of tubes and gas-check pads after various numbers of rounds had been fired. Artillery personnel should be given more training and experience in the recognition and application of modifications. The best maintenance men on both the 60- and 81-mm mortars are in the using organizations. The higher the echelon, the worse the maintenance appeared to be on these two weapons.

**Welding.** Some units think that they always need more welders and that mechanics should be trained so they can serve as welders when necessary. Others think that welders should receive training as mechanics so they can do repair

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work when not engaged as welders. This paradox does not appear to be general. Evidently there was a surplus of welders in only a few isolated units. From the beginning there has been an unforeseen welding load. This has included construction work in depots and shops, tank modifications, and tankshrouds. Welders had trouble with their eyes because of such constant work, and medical officers were kept on hand during rush periods to treat their eyes. The shortage of welders became so acute that it was necessary to open a welding school.

**Depot Companies.** Several complaints were made that depot companies, both base and field, arrive without adequate training. Too many officers and men know only the number of an article and know nothing whatsoever about the materiel itself. They can't stock a depot on, say, a 15-day basis. They can get parts but do not know how to concentrate on the essential parts.

The personnel in the depot companies have had too little actual experience. Base depots, both in England and on the Continent, operate very much like those in the U. S. If possible, depot companies should be given an opportunity to put their instructions to practical application at one of the major supply points in the U. S.

The depot commander must have the vision to deal with enormous fluctuations of the prepared programs. Generally, the location of bins and the number of bin openings have been forecast. It often develops, however, that provision must be made for as much as 100-percent overload in both bins and storage space.

Supply courses tend to be dry, uninformative, and incorrect. Instructors tend to be abusive of the latest circulars and to answer questions by saying, "Well, maybe they do it that way in the field, but this is what the books says." Instructors must "sell" supply to the students, bearing down particularly on those officers who have no specific technical background.

Difficulty has been encountered in locating depot companies which are trained on combat-vehicle parts. It is also essential that ordnance troops be able to identify and know the nomenclature of all vehicles of other services, including vehicles of the Air Forces. During the landings in France they handled all Army vehicles for all services. This was logical since 90 percent of the vehicles were Ordnance. They stored temporarily, processed, and issued; it is important that they know all types.

**Fire Control.** All repairmen should know the tactical operation of the instrument they repair. AA fire control instrument repairmen should have more training in trouble shooting. The instrument most commonly used to diagnose trouble in M9 directors is the analyser, and M9 directormen should be taught to use it. Radar is used a great deal, and M9 directormen should know radar repair. Technical training should be followed by practical application so that men will not forget what they have learned.

**Small Arms.** Small arms men are not familiar with weapons on tanks. These weapons have different traversing and elevating mechanisms, and men seem to be afraid to tackle them. This should be included in small-arms training.

Small-arms men would be more valuable if trained on the M45 multiple mount and on mortars since artillerymen are not always available for servicing the unit. Specialization on individual weapons should not be carried too far. The flow of work varies, and it is necessary to shift personnel to cope with usual receipts of a particular type of weapon. One of the best arrangements is to have two men who are experts on each weapon. When an unusual load develops on that weapon these men become guides for the rest of the men assigned to work on that weapon. The remainder of the men in the section should be generally adept on all weapons.

**Collecting Companies.** Officers need more training on collecting companies and collecing points. At present, these are all improvised in the field. They present a large problem to the Army.

**General Supply.** Maintenance companies should train all supply platoon personnel to maintain stock and supply records in order to insure an adequate supply of parts. They should know how to locate parts in manuals, should be able to identify parts, and should know their nomenclature.

**Commanding Officers.** It was repeatedly emphasized that group and battalion commanders must be trained militarily. They must be leaders in every sense

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of the word. It is a mistake to think that an ordnance officer with only technical training can handle situations which confront a commanding officer. The commanding officer must be able to establish camps, administer troops from other services, and take care of sanitation and mess; the leadership must come from them and them alone.

**Combat Training.** Experience indicates that there can be no assurance that any units other than base maintenance battalions and base depot companies will be assigned to rear areas. With the exception of these units, all units must be trained to fight. Now that our Army has taken the offensive and makes rapid advances with spearhead attacks, supporting ordnance units follow the spearheads as rapidly as possible to render efficient service. In such an advance, many pockets of enemy resistance are left behind to be cleaned up later. Any troops that come in contact with them have to fight, and pitched engagements with the enemy may be expected. For security in a bivouac area, perimeter defense is used, with a gate guard and about eight other posts. It has been found advisable to have the reliefs sleep right at the post. Men are "trigger happy" when left by themselves.

**Aircraft Identification and AA Defense.** Aircraft identification must be emphasized in training. Allied planes were shot down by our own troops. Men are now learning to recognize planes by the sound of their motors.

Small arms are not used for AA defense. Cal .50 is used on vehicles when in convoy and in bivouac areas. Never open fire with cal .50 unless located and attacked by the enemy. Most air attacks came at night.

**Classified Documents.** Complaints were made that there are too many secret and confidential documents in circulation in the field, but all the rules of security are followed. The handling of classified documents should be stressed in training. Men should be taught how to take care of them and how to destroy them in a hurry.

**Engineer Operation.** Ammunition, depot, and MVD companies should be taught the fundamentals of constructing roads. If the road net is properly laid out in the first place, it will need fewer changes if and when engineer troops are available. The engineer troops are efficient and willing but not always available when needed. They are often called away for work of higher priority. Ordnance troops must do much of the work normally performed by the engineers.

**Mine Detectors.** All ordnance personnel and especially ammunition companies, should be trained in mine detection. The engineers clear the roads but are seldom available for clearing fields; ordnance companies must often set up depots before the areas have been cleared by the engineers and casualties have resulted. This type of training should be extended to include the location and handling of booby traps.

**Training.** Although it is assured that the Allies are winning this war, it must be remembered that it is not yet actually won. The Ordnance Department has made a record it can be proud of, but there are still many places for improvement in the training program. The defects that have been pointed out and the recommendations that have been made in this report are not intended to detract in any way from the excellent job that Ordnance is doing. They are made so that faults which have been brought to light can be studied and improvements made in the future. To summarize, additional training is needed in these categories:

a. Ammunition.
b. Supply.
c. Captured materiel.
d. Collecting points and reclamation.
e. Contacts with General Staff Officers.
f. Leadership in all grades.

It will be noted that these six points are peculiar to the military field in wartime. There is little counterpart in civil life, and training on these subjects by their very nature is difficult. Therefore they must receive greater emphasis, and training must be as realistic as possible. The instructors must "live" the war to be able to impart the enthusiasm so necessary in the students' training.

**Ammunition.** Ammunition troops need more training on both the technical and

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supply phases of ammunition. A single soldier may be put in charge of a group of civilian laborers, and his training must be such that he can competently direct their work.

**Supply.** Perhaps the outstanding Ordnance lesson of the war is the great importance of the receipt, storage, and issue of parts supply—the maintenance of supply. More training is needed in all phases of the supply problem and, in many instances, additional personnel is required.

**Captured Materiel.** The use that could be made of captured materiel has been greatly restricted because of a lack of training both in maintenance and operation. Even a few men well trained in enemy materiel would be of great help in making use of the large quantities that have been available.

**Collecting Points and Reclamation.** Not enough men had been trained in the establishment and operation of collecting points. The supply problem can be enormously reduced by a rapid and efficient system of collecting and reclaiming equipment which is damaged in the combat zone.

**Contacts With General Staff Officers.** Entirely too many officers do not have the ability to properly prepare an idea and present it to a General Staff Officer so that he can intelligently consider and act upon it. His time is limited; he must decide quickly. When an officer has a plan he believes to be good, he must know how to organize and present it so that its merits can be seen.

**Leadership.** There is a lack of effective leadership in all grades. Particularly in the higher grades, leadership is more important than technical knowledge, for which the officer can rely on his junior officers. In all grades, however, leadership is of paramount importance. The first duty of every officer is to be an effective leader; it should be the first consideration in selecting and training officers.

**Mobility.** Field supply units, both ammunition and general supply, should have mobility built into them. Experience indicates this is essential if supply is to keep pace with mechanized units in modern warfare. Mobility that is not an inherent part of the companies is likely to be diverted when a static situation is reached and then not be available when, because of a new break-through, it is needed most.

**Base Support.** Armies have a tendency to draw away from the base installations. It takes an appreciable time to establish ordnance bases; by the time they are ready to function the army is often far ahead. Elements should be added to the base shop which have more mobility, which can push 5th-echelon maintenance forward aggressively.

**Combat Troops.** Ordnance troops should be designated combat troops. The few examples given in this report clearly indicate that they may frequently be called upon to wipe out pockets of enemy resistance in offensive warfare, as they have had to combat enemy break-throughs in the defensive warfare encountered earlier in this war. This has been largely foreseen, and the training program has already been adapted to include combat training. However, designation as combat troops would not only assure proper emphasis on this important subject during training but would convince the men of the importance of this training, assure their devoting the proper energy to assimilating it, and develop the frame of mind that would prepare them to meet the enemy confidently should the time come.

## GENERAL MILITARY OPERATION

**Security.** *Combat zone.* Troops soon learn just what security measures are necessary. They do not normally dig in while on a halt, but in bivouac areas, digging in is fairly universal. If a reconnaissance plane passes over, indicating the probability of an air attack, they dig in—and deep. Ordnancemen should be most familiar with the use of the rifle and carbine. The only other weapons they are likely to have are machine guns. In case of an enemy break-through, the company commander is notified through the usual channels of communication. Divisions take care of ordnance units supporting them. In the event that enemy troops were to make an airborne landing nearby, the ordnance company would take up a defensive position. However, combat troops—cavalry, reconnaissance, etc—would normally take care of them. Allied air superiority makes such a landing unlikely.

*Communications Zone.* A perimeter defense system is used for depots and base shops, supplemented by AA installations and ground-force units in the vicinity.

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In the event of attack, the plans call for patrols covering the outer perimeter, with the bulk of troops held in reserve in the depot.

*Camouflage.* Flat tops are not normally used by Ordnance. Drapes are used instead, and they must be garnished 100 percent.

*Gas.* Unit gas officers and noncommissioned officers are used in each organization of company size or larger. Troops do not normally carry their gas masks but keep them handy. A sudden gas attack would be a bad surprise and would catch the troops unprepared defensively.

**Troop Movements.** In a general advance, companies move forward separately. They are told by phone that they will move. The commander alerts the company and sends officers to make a reconnaissance. Another party will be sent forward to look for mines and booby traps in the new bivouac area.

**Censorship.** One officer in the company is designated unit censor. This duty requires about 3 hours a day, operating under rules established by the theater. Censorship has offered no particular problem.

**Military Courtesy.** Military courtesy is stressed as much as in the U. S. It is used as a method of establishing and maintaining discipline within the chain of command.

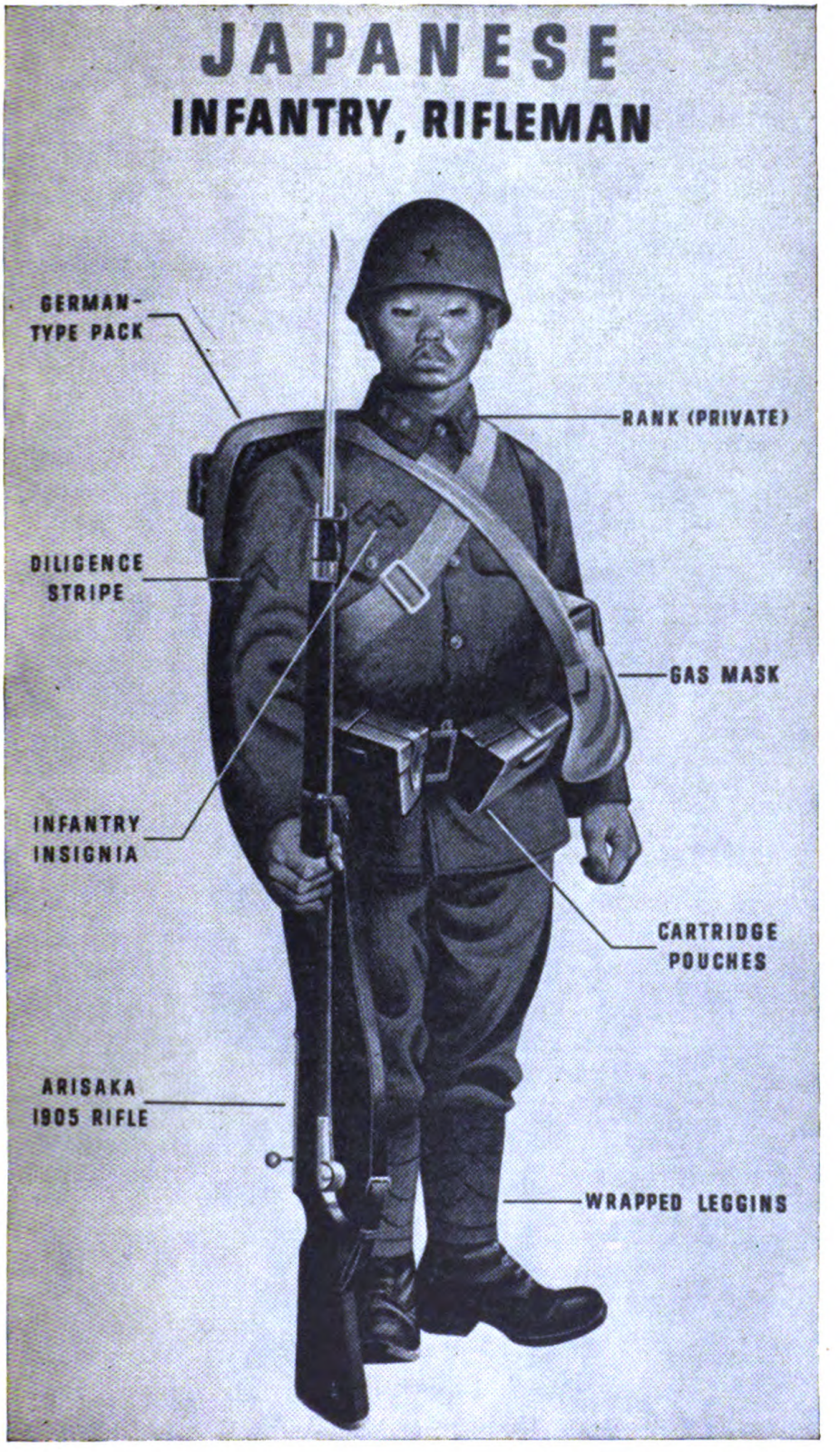
**Health.** The health of the men is good. They are living on K rations in many instances, but these seem to agree with them. Men tend to become slack about their personal cleanliness and don't like to shave. There are no laundry or dry-cleaning facilities. Water purification is handled by the engineers, but the men have halazone tablets for individual use when necessary.

## ANNEX 2

## IDENTIFICATION OF JAPANESE SOLDIER

The five illustrations shown below give the principal characteristics of the Japanese soldier. You must learn to recognize (and kill) Japs quickly for it is a disadvantage not to know your enemy. Know his habits and ruses so you will not be taken by surprise. The Jap is no superman nor is he a monkey; don't be scared and don't be overconfident.

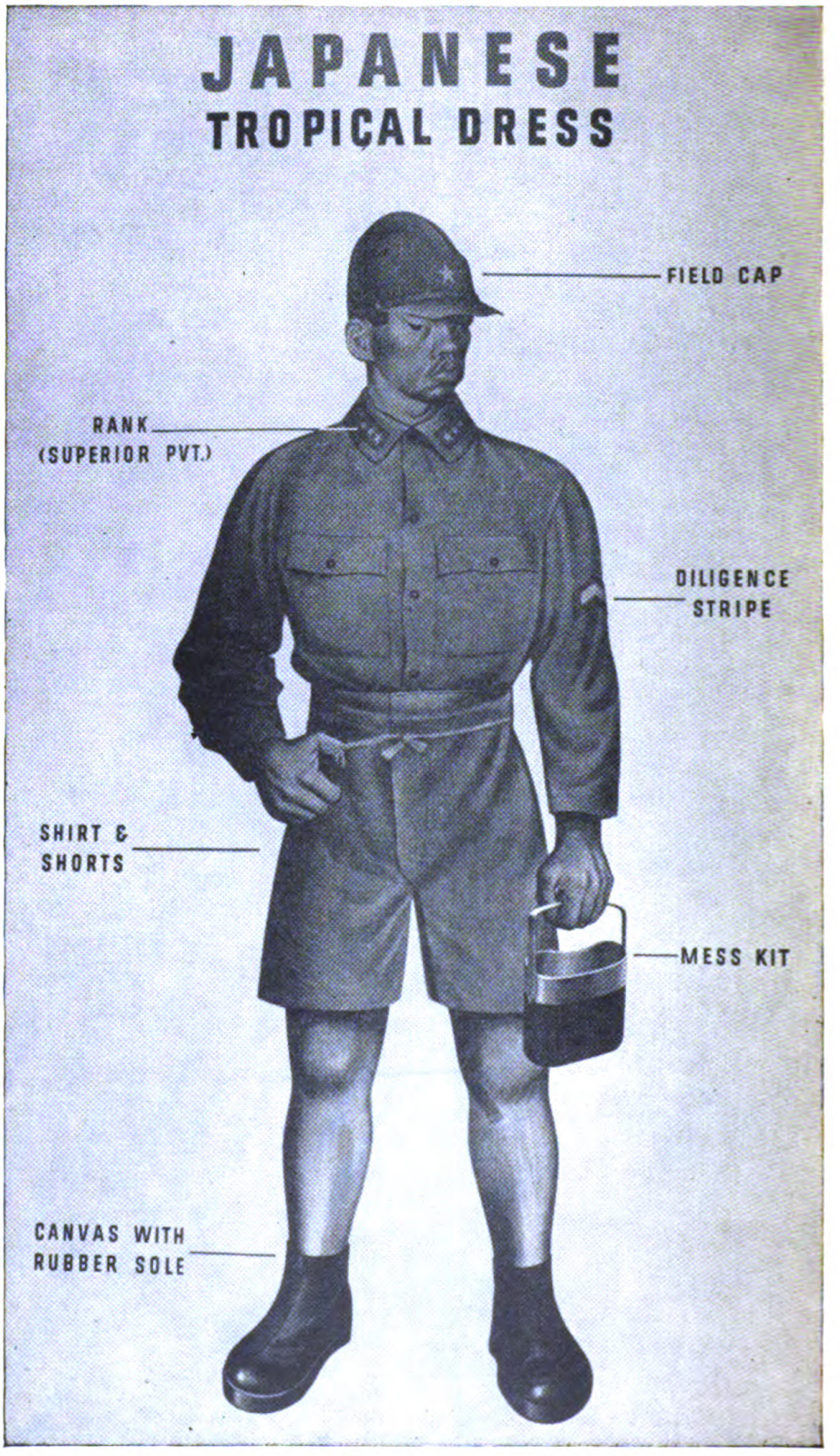
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Courtesy of ASFTC (ORD)

**Figure 286. Japanese Characteristics, Uniform.**

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Courtesy of ASFTC (ORD)

**Figure 287. Japanese Characteristics, Uniform.**

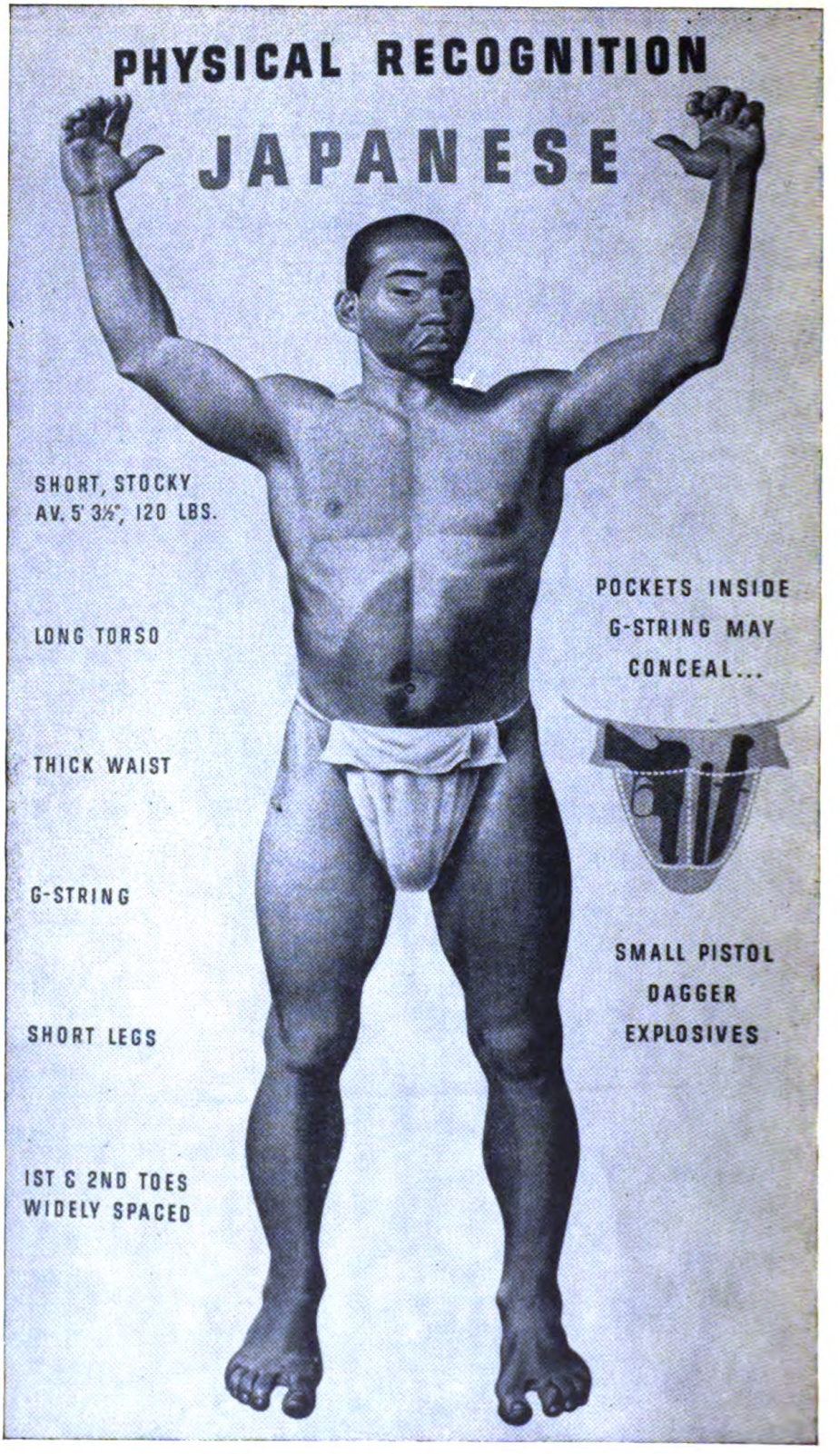
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Courtesy of ASFTC (ORD)

**Figure 288. Japanese Characteristics, Uniform, Jungle.**

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Courtesy of ASFTC (ORD)

**Figure 289. Japanese Characteristics, Physical.**

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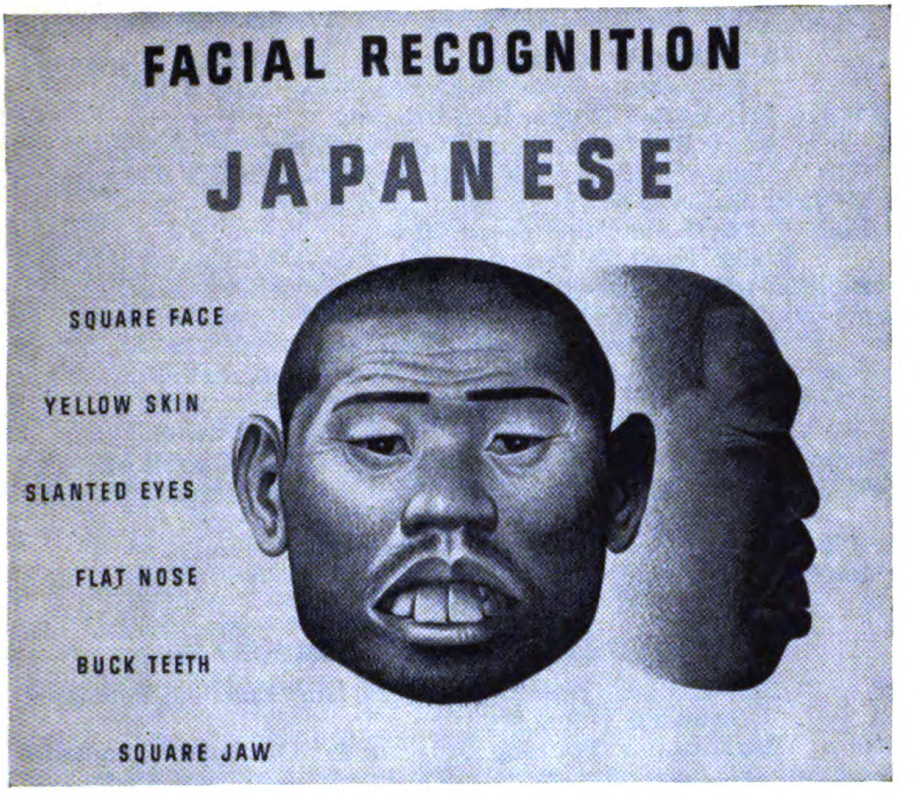
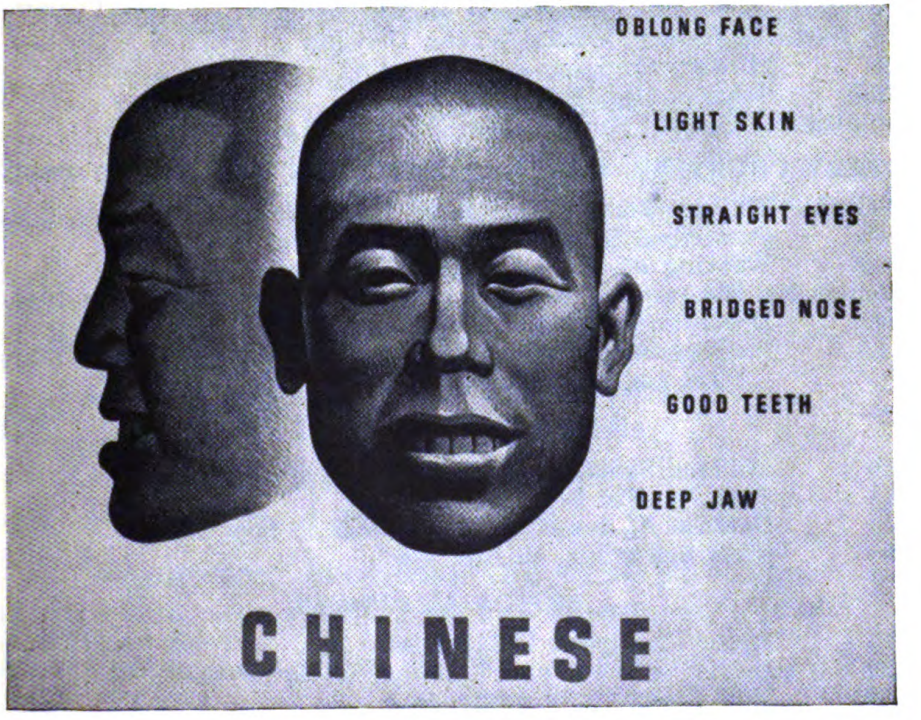



Figure 1.




Courtesy of ASFTC (ORD)

Figure 2.

**Figure 290. Japanese Characteristics, Facial.**

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# CHAPTER 6

## STAFF FUNCTIONS

A military organization consists of a *Command* element, *Combat* elements, and *Service* elements. The command element consists of a single head or commander together with the assistants or staff officers necessary to relieve him of the burden of details and enable him to exercise adequate control over his command.

The commander of any unit is alone responsible to his superior for all the unit does or fails to do. All policies, basic decisions, and plans must be authorized by the commander before they are put into effect. All orders from a higher unit to a subordinate unit are given to the commander thereof, and each individual is accustomed to look to his immediate superior for orders and instructions. By this means alone, authority and responsibility are definitely fixed and the channels of command definitely established.

The staff is an aid to command. It is provided to relieve the commander of details by providing basic information and technical advice by which he may arrive at decisions; by developing the basic decision into adequate plans, translating plans into orders, and transmitting them to subordinate leaders; by insuring compliance with these orders by constructive inspection and observation for the commander; by keeping the commander informed of everything he ought to know; by anticipating future needs and drafting tentative plans to meet them; and by supplementing the commander's efforts to secure unity of action throughout the command.

In combat and in garrison the same necessity exists for a staff. In garrison the time element is often of less importance than in combat, and a staff lacking in the high degree of organization and the close association demanded in combat may not cause such immediate or disastrous consequences. In garrison, the commander can enunciate broad policies the details of which may be carried out by the staff officers without further reference to the commander; this practice allows a commander to assume responsibility for a much wider scope of activities than those which pertain directly to his own unit. In combat, however, close coordination and cooperation is necessary to insure unity of action and teamplay.

**Unity of Action.** The staff and the commander must function as one. Unity of action is a vital requirement. The commander may direct: "This command will move tonight by motor transport and marching to Sussex." To insure the smooth execution of this order the staff must prepare instructions for a number of operations, all of which must be accurate, coordinated with other phases of the movement, and furnished to subordinate commanders in time to be applied. Routes for foot and motor columns must be designated, and provisions for march control, if any, announced. Each detail of the march must be worked out by the staff if delays and fatigue are to be prevented.

**Limitation of Staff Authority.** A staff officer, as such, has no authority to command. He does not originate policies, basic decisions, or plans, for that responsibility rests with the commander.

When it becomes necessary for a staff officer to issue an order in the name of the commander, responsibility for such an order remains with the commander even though he may not have seen the order as actually written or heard it if given orally.

Staff officers who exercise supervision over any phase of operations must restrict their control to the sphere of the commander's announced decisions and orders. When circumstances arise which in their opinion may make advisable a deviation from established policy, even in the most minor degree, the situation should be presented to the commander for his decision.

When a commander has given specific instructions to a staff officer, the actual issue of the necessary orders or instructions to members of the command are properly given in the name of the commander by the staff officer, orally or over his own signature, thus: "The Commanding Officer directs" or "By Order of Colonel A——, B——, Adjutant."

Where a commander has decided upon a policy to be followed and has indicated



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that policy to a staff officer, all future questions that fall completely under that policy should be handled without further reference to the commander.

Where the commander has specified an object to be attained, or has outlined a plan for its attainment, all orders and instructions which are necessary to give effect to the commander's decision may be given in the Commander's name by the proper staff officer.

A staff officer must never usurp the prerogatives of command. In the event of an unforeseen emergency when immediate action is imperative and the commander cannot be consulted, the staff officer should be prepared to state to the senior line officer with whom he is able to get in touch the action he believes the commander would desire. The decision then becomes the responsibility of the senior officer consulted, and is not the responsibility of the staff officer.

**Relation of the Staff to the Commander.** No two commanders operate exactly the same with respect to the details of this relationship. Some commanders announce broad policies and desire members of the staff to proceed with confidence in the execution of tasks with little consultation on the details; others will wish to give personal approval to at least the more important phases which are encountered. The staff must adjust itself quickly to the method of operation desired by the commander.

However, there are basic requirements which must be met by all staffs, if they are to render the necessary service in their relationships with the commander. Staff officers must present the whole truth candidly and frankly to the commander on all matters which go to him for decision. When they are called upon for recommendations, they must state exactly what they believe, without equivocation, and not state as their own opinions that which they think the commander may wish to hear. The commander must be provided with complete information on which to make an independent decision. "Ready-made" decisions by officious staff officers lead to disaster. The staff must anticipate future occurrences and be ready with tentative plans when they arrive. When the commander makes his decision, that decision must be adopted by the entire staff and enthusiastically carried out in spirit and to the letter.

**Relations Between Members of the Staff.** However carefully they may be appropriated among members of a staff, duties frequently overlap or leave gaps and must be adjusted by agreement. Often a matter under consideration will concern two or more of the staff. Vital information to one staff section may be immediately available in another. There must be a constant coordination and cooperation between staff sections and individual staff officers. A staff which attempts to conduct its functions independently of the others has been likened to a water-tight compartment; such a staff will fail its commander. Within the small staff of units such as the brigade, regiment, and battalion, one staff officer must stand ready to take over the duties of another on short notice, particularly during maneuvers where continuity of action during an extensive period is required. Formal correspondence between staff sections is not in order; and, where personal conference is practicable, the use of the office memoranda should be the exception. Collaboration, coordination and cooperation are the principles which must be observed.

**Relations Between the Staff and Troops.** The staff serves the troops as well as the commander. It has been said that the staff which serves the troops best serves its commander best. Good staff work requires the staff to know and appreciate fully the situation of the troops, their morale, their state of training, the state of their equipment and supply, and all other conditions affecting their efficiency. This information can be obtained by intimate contact and observation, but it cannot be secured by remaining behind a desk. Just as a staff section must not attempt to live within a water-tight compartment with respect to other staff sections, for the same reasons, the staff as a whole must not isolate itself from the troops. Staff officers must visit the troop units frequently and learn from actual contact the conditions and needs of units, and thus let the latter realize that when an action is ordered, the situation confronting the troops has been taken into account.

As a rule, when a staff officer visits troop units he first calls upon the commander. It is desirable that he state at once the purpose, if any in particular, which his visit is to accomplish. A cordial relationship between staff officers and subordinate

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troop commanders must be developed. It is desirable that, before he leaves, the result of his observations be disclosed to the unit commander, and when so disclosed they should be exactly as may later be made to the commanding officer. Distrust is easily created and is difficult to dissipate. A mutual feeling of trust and confidence must be built up and confirmed by each recurring contact.

**Qualifications of Staff Officers.** Some officers possess personal characteristics which qualify them better for duty as a staff officer than others who may be better fitted for command duty or other responsibilities. A good staff officer must be able to submerge his own desires and convictions into that of the commander and his entire staff in order that unity of action may be obtained. He must seek no credit for a success gained by his commander on his advice, and conceal his nonconcurrence with a plan which may have culminated in failure. He must be completely honest and frank with the commander and his associates to the end that no possible cause for misunderstandings can originate. His motives in all matters must be beyond question. He must be tactful, possess forbearance, have a willingness to accept responsibility, act with reserve, possess good judgment and personal valor. He must avoid making the snap judgments which may later cause embarrassment to the commander, and be completely free from churlishness. While such a paragon may never exist in the flesh to the fullest extent, such attributes are necessary and must be cultivated. Still another must be added. He must be attentive to details so that when matters are presented to the commander as facts they are the truth. Slipshod work by a staff officer may have serious consequences for the commander.

Many orders are written or dictated by staff officers. They must be conveyed concisely and in good English. "Canned language" is not a proper substitute for correct phraseology since the set phrase may not express the intended thought to the reader or listerner. Ambiguous statements must be eliminated since it has been well established that "an order which can be misunderstood will be misunderstood."

**The Staff Officer and His Records.** The commander relies upon his staff officers for the maintenance of required and useful files and records as well as for the initiation of routine reports. This is an important responsibility for the staff. In the field, there are required records which are prescribed in Field Manuals. In garrison there are other records and correspondence which must be available at once when needed. A staff officer should familiarize himself completely with the administrative requirements of his office, train the personnel charged with the preparation of records or filing, and by frequent check assure himself that they are maintained as he wishes them.

In campaign or maneuvers, the tactical staff must exercise great care in keeping the few, simple records which are prescribed. Officers constituting the staff of a small unit must relieve one another during sustained action in order that each may secure an adequate minimum of rest. The relief of an officer and the assumption of his duties by another will entail serious difficulties unless the same system of records is kept by each officer concerned and entries made as events occur.

When this necessary practice is observed, an officer who assumes an additional duty can ascertain the exact status of many necessary matters and avoid the hazard of omitting an action which is vital or repeating work which has been accomplished. This is very important because staff officers who attempt to continue on duty for long periods without sleep are liable to commit errors caused by fatigue from which they would be entirely free when rested. But to obtain this condition there must be an interchange of tasks which can only be successful if well coordinated.

**The Theory of Completed Staff Work.** A good staff officer thinks through each problem presented to him for solution, and decides upon a line of procedure. He must decide in advance the information which he must obtain and the individuals with whom he must confer to gather it. He must determine all the angles and all the viewpoints of interested officers or agencies. Considerable leg work will be necessary in the usual case. Rarely is a staff officer worth his salt who neglects these things.

The Provost Marshal General issued an order in January, 1942, to the officers under his control which states in a thorough manner the theory of completed staff

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work which may serve well as a guide to staff officers of all degrees of experience. It is reproduced below:

"1. The doctrine of 'completed work' is a doctrine of this office.

2. 'Completed Staff Work' is the study of a problem and presentation of a solution, by a staff officer, in such form that all that remains to be done on the part of the head of the staff division, or the commander, is to indicate his approval or disapproval of the completed action. The words 'completed action' are emphasized because the more difficult the problem is, the more the tendency is to present the problem to the chief in piecemeal fashion. It is your duty as a staff officer to work out the details. You should not consult your chief in the determination of those details, no matter how perplexing they may be. You may and should consult other staff officers. The product, whether it involves the pronouncement of a new policy or affects an established one, should, when presented to the chief for approval or disapproval, be worked out in finished form.

3. The impulse which often comes to the inexperienced staff officer to ask the chief what to do, recurs more often when the problem is difficult. It is accompanied by a feeling of mental frustration. It is so easy to ask the chief what to do, and it appears so easy for him to answer. Resist that impulse. You will succumb to it only if you do not know your job. It is your job to advise your chief what he ought to do, not to ask him what you ought to do. He needs answers, not questions. Your job is to study, write, restudy and rewrite until you have evolved a single proposed action—the best one of all you have considered. Your chief merely approves or disapproves.

4. Do not worry your chief with long explanations and memoranda. Writing a memorandum to your chief does not constitute completed staff work, but writing a memorandum for your chief to send to someone else does. Your views should be placed before him in finished form so that he can make them his views simply by signing his name. In most instances, completed staff work results in a single document prepared for the signature of the chief, without accompanying comment. If the proper result is reached, the chief will usually recognize it at once. If he wants comment or explanation he will ask for it.

5. The theory of completed staff work does not preclude a 'rough' draft but the rough draft must not be a half-baked idea. It must be complete in every respect except that it lacks the requisite number of copies and need not be neat. But a rough draft must not be used as an excuse for shifting to the chief the burden of formulating the action.

6. The 'completed staff work' theory may result in more work for the staff officer but it results in more freedom for the chief. This is as it should be. Further, it accomplishes two things:

a. The chief is protected from half-baked ideas, voluminious memoranda, and immature oral presentations.

b. The staff officer who has a real idea to sell is enabled more readily to find a market.

7. When you have finished your 'completed staff work' the final test is this:

If you were the chief would you be willing to sign the paper you have prepared, and stake your professional reputation on its being right?

If the answer is in the negative, take it back and work it over, because it is not yet 'completed staff work.'"

**Matters Presented to the Commander.** A new commander is apt to assume that everything is running smoothly and satisfactorily if too many complaints and appeals from decisions of his headquarters do not crop up. Having confidence in his staff, he is prone to let these officers decide for themselves what matters should be brought to his attention. Such a hit-or-miss system may result in a staff-run organization or in the commander being swamped under a mass of trifling details which his staff should handle.

The memorandum which is reproduced below was placed in effect by Major General Frank S. Cocheu with a view to exercising command without infringing on any of the duties and prerogatives of staff officers, and is said by him to be the product of many years of experience.

*Memorandum For the Staff.* 1. The following will be brought without delay to the attention of the Commanding General:

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a. Subjects of importance which require prompt action and are not covered by existing policies and instructions.

b. Disapprovals from higher authority.

c. Errors, deficiencies or irregularities alleged by higher authority.

d. Communications that allege neglect or dereliction on the part of commissioned personnel.

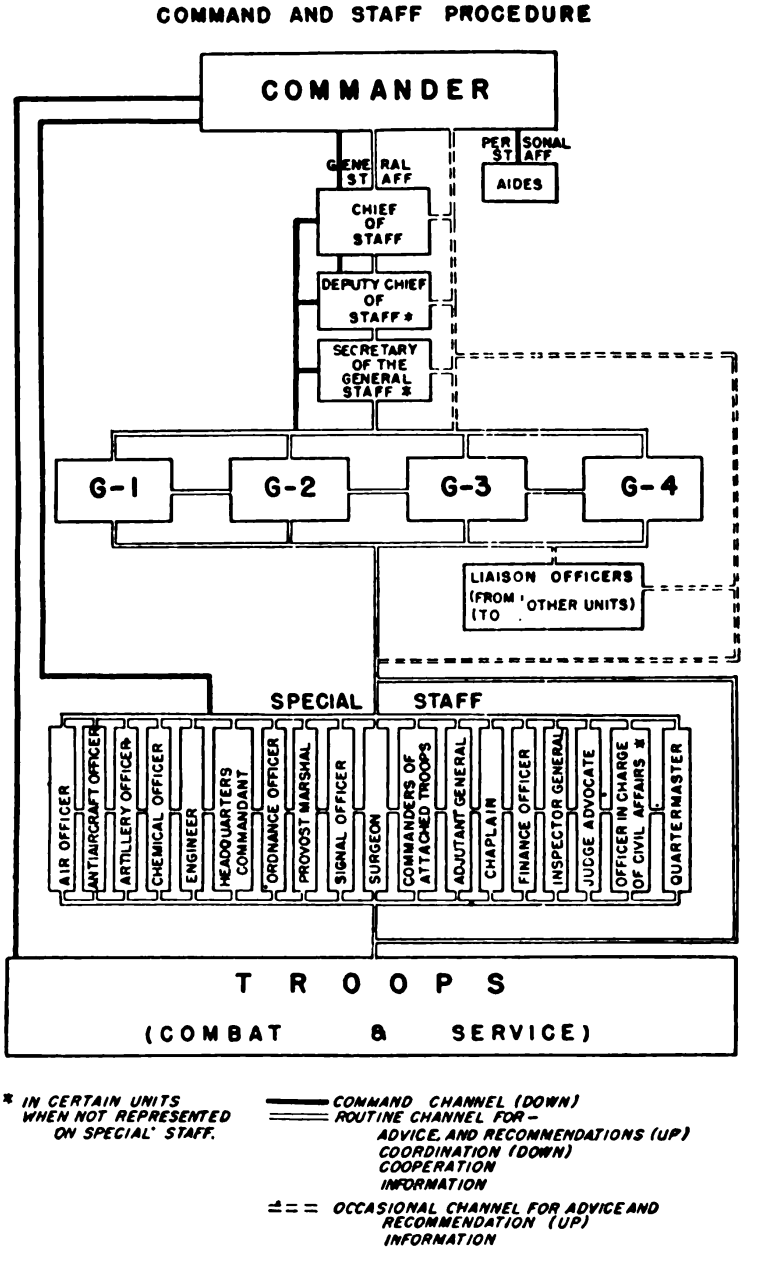



**Figure 1. Command and Staff Procedure.**

e. Correspondence or proposed correspondence conveying even a suggestion of censure.

f. Appeals from subordinates from decisions made at this headquarters.

g. Subjects which affect the good name or reputation of an officer or organization.

h. Serious accidents involving personnel of the command.

2. The following will be presented to the Commanding General for final action:

a. Requests and recommendations to be made to higher authority.

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b. Suggested disapprovals.
c. Communications that involve the good name of an officer or organization.
d. Communications that contain a suspicion of censure.
e. Reports of financial and property irregularities.
f. Letters to civil authorities in high positions.
g. Endorsements on efficiency reports.
h. Correspondence concerning war plans.
i. Communications of exceptional information.

3. A copy of these instructions will be kept exposed at all times upon the desk of each staff officer of this headquarters.

**Classification of Staff Officers.** The staff of a division or larger unit may be subdivided into two main groupings:

A *general staff group,* organized so as to include all functions of command, and composed of officers of the General Staff Corps and officers detailed as their assistants.

A *special staff group,* consisting of all staff officers assigned, attached, or who have duties at the headquarters and are not included in the general staff group. It includes certain technical specialists and heads of services.

In units smaller than a division, the same officer frequently performs duties of both general and special staff nature; consequently there can be no definite subdivision of such staffs into general and special staff groups.

Personal staffs or aides as authorized by law for certain general officers perform the duties prescribed by the general officer to whom assigned. They may be assigned to additional duties with the unit staff. They may be directed to keep the chief of staff or executive informed of the commander's whereabouts and of the general content of any oral instructions he may have issued during an absence from the command post.

**Organization.** The organization of a staff is based upon the duties of the commander. The general distribution of personnel to staff sections is shown in Tables of Organization. The detailed allotment of personnel to sections, particularly in the general staff group, will be made by the commander.

The duties of all commands can be divided into four principal functional groups as follows:

Personnel.
Military intelligence.
Operations and training.
Supply and evacuation.

These 4 subdivisions of command duties, under a coordinating head, exist in the staffs of all units. In the staffs of the smaller units of certain arms or services the duties of two or more of these subdivisions may be performed by one staff officer. The coordinating head is the chief of staff in the division and higher units (executive in brigades and smaller units). He is responsible directly to the commander.

*Division Into Two Echelons.* For convenience of operation it is necessary frequently to divide the staff into two echelons. The *forward echelon* consists of the elements required immediately by the commander for tactical operations; and the *rear echelon,* of the remainder of the staff required for administrative activities.

**Cooperation.** Teamwork is essential within and between staffs and between staffs and troops. It is assured by cooperation and collaboration within and between all sections of the general and special staff groups, between the staff and troops, and between the staffs of subordinate, higher, and adjacent units. Prompt dissemination of essential information and of decisions and orders within and between groups is vital to the efficient functioning of a command.

## THE GENERAL STAFF

**Duties:** The general statutory duties of the general staff with troops are to render professional aid and assistance to the general officers over them; to act as their agents in harmonizing the plans, duties, and operations of the various organizations and services under their jurisdiction; to prepare detailed instructions for the execution of the plans of the commanding general; and to supervise the execution of such instructions.

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The detailed duties of the general staff group are set forth below. This subdivision of activities is intended only as a guide in assigning duties to the general staff sections. The unit commander may and should make such adjustment of duties as best meets operating conditions.

The general staff group is responsible for preparing and issuing all combat orders except those orders issued by the commander in person.

The general staff group supervises the execution of orders to insure understanding and execution in conformity with the commander's will.

**Organization: Designation.** *Divisions and Higher Units.* The general staff group of divisions and higher units is organized in 4 sections corresponding to the functional subdivisions of command. The group includes the necessary coordinating personnel. The chiefs of sections are designated as assistant chiefs of staff, G-1, G-2, G-3, and G-4. The organization includes:

Coordinating personnel—chief of staff, assisted by—
- Deputy chief of staff (in army and higher units).
- Secretary of the general staff (in army and higher units).

Staff sections.
- Personnel section (G-1).
- Military intelligence section (G-2).
- Operations and training section (G-3).
- Supply and evacuation section (G-4).

In some divisions the general staff group consists of the chief of staff and three sections. The chiefs of sections are designated as assistant chiefs of staff, G-2, G-3, and G-4.

*Units Smaller Than Division.* In units smaller than the division, to include the battalion (or equivalent unit), duties corresponding to those of the general staff group are assigned to officers listed below. Staffs of many smaller units are of such limited size that one staff officer is charged with the duties of two or more staff sections.

Chief of staff—the executive officer.
Personnel section—the adjutant (S-1).
Military intelligence section—the intelligence officer (S-2).
Operations and training section—the plans and training officer (S-3).
Supply and evacuation section—the supply officer (S-4).

**Forward and Rear Echelons.** The forward echelon of the headquarters of a unit usually includes all of the officers whose duties are of general staff nature. Representatives of S-1 and S-4 may be at the rear echelon.

**Flexibility of Operation.** Although the general staff group is organized into 4 sections there is much overlapping of duties; coordination and prompt interchange of information between sections are essential. In addition, general staff officers may be required to assist, or to take over temporarily, one or more other sections. This condition frequently exists in divisions and corps, especially when the headquarters of these units are operating on a 24-hour basis.

**Chief of Staff** (executive in brigades and smaller units). The chief of staff or executive is the principal assistant and adviser to the commander. He may transmit the decisions of the commander to appropriate staff officers for preparation of the necessary orders, or transmit them in the form of orders to those who execute them. He is the principal coordinating agency of the command. He performs the following specific duties:

Formulates and announces policies for the general operation of the staff.

Directs and coordinates the work of the general and special staff in respect to: Activities of the sections within the general and special staff groups. Relations between the general and special staff groups. Relations between the general and special staff groups and the troops.

Keeps the commander informed of the enemy situation, the situation relative to adjacent and supporting units, and the situation of the command as to location, strength, morale, training, equipment, supply, evacuation, and general effectiveness.

Represents the commander during his temporary absence or when authorized to do so. (In certain small units the second in command is designated by Tables of Organization as executive, hence succeeds automatically to the command when the commander ceases to function.)

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Receives decisions from the commander and takes the following action: Makes such additional decisions as may be directed by the commander and gives necessary instructions to the staff in furtherance of these decisions. Allots the detailed work of preparing plans and orders and when time permits coordinates the resulting drafts and submits them to the commander for approval.

Takes steps to insure that all instructions published to the command are in accord with policies and plans of the commander.

By personal observation, and with the assistance of the general and special staff sections, sees that the orders and instructions of the commander are executed.

Makes a continuous study of the situation with a view of being prepared for future contingencies.

Assembles the routine staff section reports and after their approval by the commander forwards required copies to higher headquarters.

**Deputy Chief of Staff** (in army and higher units only). The relations of the deputy chief of staff to other members of the staff and to the troops are similar to those of the chief of staff. The deputy chief of staff assists the chief of staff and acts for the latter in his absence.

**Secretary of the General Staff** (in army and higher units only). The secretary of the general staff performs the following duties:

Acts as executive officer for the chief of staff and deputy chief of staff.

Maintains an office of temporary record for the chief of staff and deputy chief of staff.

Routes papers received in the office of the chief of staff to their proper destinations.

Forwards correspondence to its destinations in the headquarters and establishes a follow-up system to insure prompt action on and return of papers.

Receives officials visiting headquarters for the purpose of conferring with the commander, the chief of staff, or deputy chief of staff.

Collects statistical data for the commander, chief of staff, and deputy chief of staff.

**Personnel (G-1) Section.** The personnel section is charged with the formulation of policies and the supervision of the execution of administrative arrangements pertaining to personnel of the command as individuals, civilians under supervision or control of the command, and prisoners of war.

In divisions in which there is no provision for a G-1 section, the supervision of activities listed below will be assigned to the G-4 section, or as may be directed by the division commander.

The specific duties of the personnel section may include the planning for and supervision of activities concerning—

Procurement, classification, reclassifications, assignment, pay, promotion, transfer, retirement, and discharge of all personnel. (Coordination with G-3 in assignment and transfer of personnel.)

Replacement of personnel. (Coordination with G-3 for priorities.)

Decorations, citations, honors, and awards.

Leaves of absence and furloughs.

Rewards and punishment.

Internal arrangement of headquarters. (Coordination with G-4 for construction.)

Religious, recreational, and welfare work; supervision of military and nonmilitary agencies devoted to such work. (Coordination with G-3 for allotment of time for recreational and morale work.)

Army postal service. (Coordination with G-4 for movement; G-2 for censorship.)

Strength reports and graphs, casualty reports, prisoner of war reports, station lists, and other personnel statistics.

General regulations and routine administration which especially concern individuals, or routine administration not specifically assigned to another general staff section.

Furnishing the commander advice on morale.

Collection and disposition of stragglers.

Collection and disposition of prisoners of war. (Coordination with G-2 for identifications and questioning; G-4 for transportation and for location and construction of prisoner of war enclosures.)

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Recommendations as to provisions for shelter for the command and administration of quartering areas. (Coordination with G-3 for location of areas; G-4 for construction.)

Sanitation. (Coordination with G-4.)

Relations with civil government and civilians in the theater of operations, including initial establishment and operation of military government or martial law. (FM 27-5.) (Coordination with G-4 for transportation for civilians to be evacuated and feeding of civilians; G-3 for evacuation of civilians as it affects operations; G-2 for censorship.)

Maintenance of law and order within the command.

Grave registration service, including burials. (Coordination with G-4 on acquisition of cemeteries.)

Supervision of matters concerning members of our forces who are prisoners in enemy hands.

Preparation of such parts of administrative plans and orders as relate to activities under the supervision of the personnel section. (Coordination with G-4.)

**Military Intelligence (G-2) Section.** The military intelligence section is charged with the planning and preparation of orders (par. 62) and to some extent with operations pertaining to the collection, evaluation, interpretation, and distribution of information of the enemy and with counterintelligence activities. Its primary function is to keep the commander and all others concerned informed regarding the enemy's situation and capabilities.

The specific duties of the military intelligence section may include—

*Intelligence* (FM 30-5). *a.* Planning and preparation of orders for and supervision of activities concerning the collection, by subordinate units, of information of the enemy and of the terrain not under our control, and of weather conditions affecting operations over enemy territory and for the employment of aviation, the location, construction, vulnerability, and defenses of air objectives. (Coordination with G-1 for prisoner of war matters; G-3 for use of combat troops for intelligence missions; G-4 for examination of captured materiel.)

Collection, by personnel of the section, of information bearing on enemy capabilities or terrain not under our control. (FM 30-10, FM 30-15, and FM 30-21.) (Coordination with G-1 for prisoners of war and captured documents; G-3 for location of observation posts; G-4 for examination of captured materiel.)

Maintenance of contact and exchange of information with intelligence sections of subordinate, higher, and neighboring units.

Maintenance of contact with other intelligence agencies of the Government and duly accredited foreign attaches and missions. (Ordinarily only in headquarters of theater of operations.)

Supervision of the solution of the enemy's secret communications. (Ordinarily only in headquarters of field army and higher units.)

Supervision of the collection of information of the enemy by radio position finding and intercept methods.

Supervision of the collection of information of the enemy by secret agents. (Ordinarily only headquarters of theater of operations.)

Evaluation and interpretation of information obtained to determine its probable accuracy, significance, and importance, and based thereon the estimation of the enemy's capabilities. (Coordination with all staff sections.)

As it influences a commander's decision for the employment of aviation, the evaluation and interpretation of information regarding the relative importance and vulnerability of those enemy activities and objectives susceptible to air attack.

Distribution of military intelligence to the commander, interested staff sections, and when appropriate to higher, subordinate, and neighboring units.

Determination of the need for military maps and surveys; recommendations as to the general character of such maps as are to be produced; supervision of map reproduction and distribution. (FM 30-20.) (Coordination with all staff sections.)

Coordination of requests for aerial photographs and, in some echelons, determination of their distribution.

Planning for and supervision of combat intelligence training within the unit. (FM 30-5.) (Coordination with G-3.)

*Counterintelligence and counterpropaganda*—The planning and preparation of orders for and supervision of activities concerning—

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Regulation of measures, other than tactical, to preserve secrecy. (FM 30-25; AR 380-5.) (Coordination with G-1 for military police matters and those relating to civilians.)

Regulation of the activities of newspaper correspondents, photographers, broadcasters, visitors, and other civilians accompanying or serving with troops. (FM 30-25.) (Coordination with G-3 for activities to be disclosed.)

Regulation of dissemination of information to the public. (Coordination with G-3 for scope of subject matter; G-1 for morale matters.)

Censorship. (Coordination with G-1 for postal matters.)

Dissemination of false information to the enemy. (Ordinarily only in headquarters of theater of operations.)

Supervision of the preparation and use of codes and ciphers.

Reception of visitors at all headquarters unless this function is delegated to the headquarters commandant or aides.

Supervision of escorting of visitors.

Supervision of the collection and disposition of enemy documentary propaganda.

Obstruction of enemy propaganda radio broadcasts to our troops. (Ordinarily only in headquarters of theater of operations.)

Preparation of measures to refute enemy propaganda among the troops or the civil population of the theater of operations. (Ordinarily only in headquarters of theater of operations.)

The organization of the military intelligence section in each unit varies with the personnel available and the work to be accomplished. In corps and higher units separate subsections pertaining to administration, intelligence, and counterintelligence may be organized.

**Operations and Training (G-3) Section.** The operations and training section is charged with those functions of the staff which relate to organization, training, and combat operations. It is responsible for tactical and training inspections, as directed by the commander (AR 265-10).

The specific duties of the operations and training section may include—

Preparation and coordination of plans for and supervision of: mobilization of the command, organization and equipment of units. (Coordination with G-4 for allocation of equipment.)

Preparation and coordination of plans for and supervision of training of units and individuals, including: preparation of training directives, programs, and orders (Coordination with G-2 for combat intelligence training), selection of training sites and firing and bombing ranges (Coordination with G-4 on preparation of sites and ranges), organization and conduct of schools.

Operations, to include, in general: tactical and strategical studies and estimates; plans and orders based thereon; supervision of combat operations, and future planning. Specific duties relative to operations may include—

Continuous study of the tactical situation, as affected by: the enemy situation (Coordination with G-2), instructions from higher units actions of adjacent or supporting units location, morale, and capabilities of the troops (Coordination with G-1 for morale matters), needs for replacements and reinforcements (Coordination with G-1 for replacements), terrain and weather conditions (Coordination with G-2), status of equipment and supplies (Coordination with G-4 for priorities of replacement of materiel and allocation of supplies.)

Preparation of estimates, reports, and recommendations based on the tactical situation.

Preparation of plans for and supervision of activities concerning: reconnaissance and security measures (Coordination with G-2 for intelligence missions of combat troops), troop movements (Coordination with G-4 for movements requiring transportation in addition to organic transportation and for routes), tactical employment of units (Coordination with G-4 for influence of supply and evacuation on operations; G-2 for capabilities of enemy; G-1 on morale of troops), defense of administrative installations and lines of communication (Coordination with G-4), tactical measures to preserve secrecy and effect surprise (Coordination with G-2.)

Preparation and authentication of field orders and operation maps required to carry out the tactical plan, and their transmission to units and staff officers concerned (par. 62). (Coordination with G-2 for maps and for paragraphs and an-

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nexes dealing with enemy information, reconnaissance, and counterintelligence measures; G-4 for paragraph dealing with administrative matters.)

Maintaining contact with the commanders of subordinate units; observing or supervising troop movements and tactical operations as directed by the commander.

Establishment of liaison with adjacent, higher, and subordinate units.

Supervision of signal communication.

Preparation of tentative plans for subsequent phases of a tactical operation and for future tactical operations. (Coordination with G-2 for enemy capabilities; G-4 for practicability of operations from a supply point of view.)

Recommendations to the commander of priorities for assignment of personnel and equipment. (Coordination with G-1 for assignment of personnel; G-4 for allocation of equipment.)

The organization of the operations and training section in each unit will vary with the personnel available and the work to be accomplished. In corps and higher units, separate subsections pertaining to administration, organization, training, operations, and troop movements may be organized.

**Supply and Evacuation (G-4) Section.** The supply and evacuation section is charged with the preparation of policies for, and the supervision of execution of arrangements for supply, evacuation, transportation, and other administrative matters related thereto. It is responsible for advising the commander relative to the extent of the administrative support that can be given to any proposed strategical or tactical line of action, and for recommendations as to the necessary decisions concerning supply and evacuation. It is further responsible for the development of those details of the administrative plan which pertain to its functions, the preparation of the necessary orders (par. 62), and the supervision of their execution.

The specific duties of the supply and evacuation section may include the planning for and supervision of activities concerning—

Procurement, storage, and distribution of all supplies including animals. (Coordination with G-3 for priority of allocation of supplies.)

Location of supply, evacuation, and maintenance establishments.

Transportation of supplies by land, air, and water.

Construction and maintenance of roads and trails, docks, and airdromes.

Maintenance of equipment. (Coordination with G-3 for priorities.)

Recommendations for allocation of small arms ammunition and antitank mines. (Coordination with G-3.)

"Traffic control." (Coordination with G-3 for tactical plan and secrecy.)

Construction, operation, and maintenance of utilities and other facilities relating to supply, shelter, transportation, and hospitalization, but exclusive of fortifications.

Evacuation and hospitalization of men and animals.

Assignment and movement of supply, medical, technical, and labor troops not employed as combat troops. (Coordination with G-3 to avoid conflict with tactical movements.)

Salvage.

Collection and disposition of captured supplies, equipment, and animals. (Coordination with G-2 for examination of matériel.)

Recommendations concerning protection of lines of communication and rear establishments. (Coordination with G-3.)

Recommendation as to location of rear boundaries.

Recommendation as to location of rear echelon of headquarters. Coordination with G-1.)

Property responsibility.

Funds and priority of expenditure.

Construction, operation, and maintenance of military railways.

Operation of inland waterways.

Recommendations as to new types of equipment. (Coordination with G-3.)

Procurement of real estate, shelter, and facilities, including their leasing, repair, maintenance, and disposition.

Acquisition and improvement of airplane bases.

Preparation, authentication, and distribution of administrative orders, both fragmentary and complete (par. 62). (Coordination with G-3 for details of tactical plan; G-1 for details pertaining to the activities supervised by the personnel section.)

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The organization of the supply and evacuation section in each unit depends upon the personnel available and the work to be accomplished. In corps and higher units, separate subsections pertaining to administration, construction, evacuation, supply, and transportation may be organized.

## THE SPECIAL STAFF

*General functions.* The special staff operates with the general staff under the policies prescribed by the unit commander. The general functions of the special staff group include—

Technical and tactical advice and recommendations to the commander and his general staff.

Preparation of plans, estimates, and orders in order to relieve the general staff of routine duties.

Coordination with the general staff sections of their tactical and administrative plans and activities.

*Dual functions.* In certain cases, special staff officers are also commanders of troops or heads of technical, supply, or administrative services and as such have the usual functions of command or control over such troops or services; for example, the commander of the artillery troops of an infantry division is also the division artillery officer. These two functions of staff and command although vested in a single individual are separate and distinct in that each involves different responsibilities and duties, and the exercise of one should not be confused or permitted to interfere with the exercise of the other. On the contrary, this dual function of certain officers has many advantages in facilitating the proper discharge of both staff and command duties of the officers concerned.

**Relations With Subordinate Units.** While certain of the duties charged to special staff officers apply to the unit as a whole, the unit commanders are primarily responsible for all phases of planning, training, and execution of all activities of their commands. Directions or instructions issued subordinate units must be transmitted through the proper channels of command and not directly from one special staff officer to the corresponding special staff officer in a subordinate unit. Within the limits and in the manner prescribed by the division or higher commander a special staff officer's duties may include:—

Technical and tactical supervision, coordination, and inspection of subordinate units of his arm or service not commanded by him.

Appropriate technical inspection of all subordinate units.

Handling routine reports directly from corresponding staff officers of subordinate units.

**Composition.** *Divisions and Higher Units.* The special staffs of divisions and higher units include such of the following officers as are assigned to the unit:

(1) Air officer.
(2) Antiaircraft officer.
(3) Artillery officer.
(4) Chemical officer.
(5) Engineer.
(6) Headquarters commandant (combined with provost marshal in certain units).
(7) Ordnance officer.
(8) Provost marshal (combined with headquarters commandant in certain units).
(9) Signal officer.
(10) Surgeon.
(11) Commanders of attached combat units having no special staff representative.
(12) Liaison officers.
(13) Adjutant general.
(14) Chaplain.
(15) Finance officer.
(16) Inspector general.
(17) Judge advocate.
(18) Officer in charge of civil affairs (initially in GHQ and other territorial commands, when required). (FM 27-5.)
(19) Quartermaster.

*Sections.* Special staff sections are shown in Tables of Organization. They

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are headed by the special staff officers indicated above. The title may be followed by the designation of the unit when necessary, thus: Finance Officer, II Corps.

*Brigades and smaller units.* In addition to the staff officers corresponding to the chief of staff and the four general staff sections in larger units (executive, S-1, S-2, S-3, and S-4), the staffs of brigades, regiments, and battalions, corresponding to the special staffs of larger units, include such of the following as may be assigned to the unit:

Communication officer.
Gas officer.
Liaison officer(s).
Reconnaissance officer.
Surgeon.
Commanders of attached combat units not represented on the staff.
Chaplain.
Motor officer (designated as maintenance officer in some units).
Munitions officer (armament officer in Air Corps units). Duties frequently combined with those of S-4.

*Forward and rear echelons.* In divisions and higher units and headquarters usually are divided so as to include the special staff officers assigned to the units and listed above from (1) to (12), inclusive, in the forward echelon, and those from (13) to (19), inclusive, in the rear echelon. In certain units a special staff section at the rear echelon may have a representative at the forward echelon.

In brigades and smaller units the headquarters usually are divided in a comparable manner between forward and rear echelons, the forward including those essential to the tactical operations.

**Duties.** The duties of the several special staff officers, as listed below, are intended as a guide. The commander may and should adjust duties to meet operating conditions. In the performance of their duties, special staff sections are ordinarily subject to supervision and coordination by appropriate general staff sections. Certain of the special staff officers whose duties are listed have both command and staff functions. *Only those duties pertaining to their functions as staff officers are listed.*

**Air Officer.** Adviser to the commander and staff on air matters.

Preparation of plans for the use of air units, including recommendations for their allotment to subordinate units.

Administrative responsibility through subordinate air base commanders for the air units operating under theater control (air officer, theater of operations, only).

Coordination, within limits prescribed by the commander, of the utilization of all air units of the command.

Determination of requirements, procurement, storage and distribution of aircraft ammunition and air technical supplies. Furnishing information as to the status of aircraft ammunition and air technical supplies.

Obtaining and disseminating meteorological data for use by the command, except that obtained by the field artillery and other units for their own use.

Examination of captured aviation equipment.

**Antiaircraft Officer.** Adviser to the commander and staff on all antiaircraft matters, including passive defense measures.

Determination of requirements and recommendations for apportionment of antiaircraft artillery ammunition.

Planning for coordination of all means of active defense against air operations in cooperation with the unit air officer.

Recommendations as to missions for antiaircraft artillery including recommendations for allotment to subordinate units.

**Artillery Officer.** Adviser to the commander and staff on field artillery matters.

Supervision of the training of the field artillery of the unit.

Preparation of plans for the use of field artillery, including recommendations for its allotment to subordinate units.

Coordination of the survey system within field artillery units.

Supervision of observation, signal communication, and liaison within the field artillery.

Supervision of supply of meteorological data for the field artillery.

Determination of requirements, recommendations for apportionment, and super-


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vision of distribution of field artillery ammunition. Furnishing information as to status of ammunition supply.

Coordination of fires of the field artillery of subordinate units.

Plans for artillery missions to be performed by observation aviation.

Collection and dissemination of information pertaining to hostile artillery and other targets through artillery intelligence agencies.

**Chemical Officer.** Adviser to the commander and staff on all chemical matters, including the use of chemicals by the various arms.

Preparation of plans for the use of chemical troops, including recommendations for their allotment to subordinate units.

Supervision of the operations of chemical troops not assigned to subordinate units.

Supervision, within limits prescribed by the commander, of all chemical training, including inspections.

Supervision, within limits prescribed by the commander, of collective protective measures, including gas-proofing of inclosures, and the decontamination of gassed areas, equipment, and vehicles.

Examination of captured chemical equipment, and collection and evaluation of other information concerning means and methods of utilization of chemicals by the enemy and our own troops and the results obtained.

Determination of requirements, procurement, and distribution of chemical equipment and supplies for all units, and chemical munitions for chemical troops.

Operation of chemical storage, maintenance and repair facilities and rehabilitation of salvaged chemical material.

Technical inspection of supplies, equipment, and ammunition, stored and issued by the Chemical Warfare Service.

Supervision of the filling of such chemical munitions as may be prescribed to be performed in the theater of operations.

Estimation of requirements and recommendations for apportionment of chemical munitions to chemical troops. Furnishing information as to the status of chemical warfare service ammunition supply.

**Engineer.** Adviser to the commander and the staff on engineer matters.

Preparation of plans for the use of engineer troops, including recommendations for their apportionment to smaller units.

Determination of requirements, procurement, storage, and distribution of engineer equipment and supplies, including camouflaging materials.

Construction, maintenance, and repair of camps, cantonments, warehouses, hospitals, and other structures, including incidental installations (except signal communications) of roads and trails, and all means of river crossings, of docks, and of airdromes and landing fields.

Supply of all fortification materials, and the construction of such defensive works as may not be assigned to other troops.

Construction, repair, maintenance, and operation of railways, portable and fixed electric light plants, water supply systems, and all other utilities of general service not otherwise assigned.

Military mining, demolitions, and the construction and removal of obstacles.

Surveys, mapping, and the procurement, production, and distribution of maps.

Engineer reconnaissance.

Recommendations as to traffic regulations on roads and bridges as may be required by their physical condition.

Preparation and posting of signs for marking routes.

Supervision, within limits prescribed by the commander, of engineer and camouflage activities in subordinate units, including such work performed by troops other than engineers.

Development within the unit of measures for camouflage of personnel and installation; preparations of instructions concerning camouflage, use of camouflage material, and protective coloration of all equipment except aircraft.

Examination of captured engineer equipment.

**Headquarters Commandant.** Local security of the headquarters.

Internal administration and arrangements for moving headquarters.

Detail of orderlies and messengers.

Supervision of headquarters mess.

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Messing and quartering of casuals.

Reception of visitors at certain headquarters.

**Ordnance Officer.** Duties of the ordnance staff officer are discussed in a separate section which follows in this chapter.

**Provost Marshal.** Adviser to the commander and staff on matters pertaining to the duties of the military police.

Enforcement of traffic control regulations.

Apprehension and disposition of stragglers, absentees, and deserters.

Collection and custody of prisoners of war.

Enforcement of police regulations among members of the military forces and in areas occupied by troops.

Cooperation with civil authorities on plans including those for police protection, black-outs, antisabotage activities, and the like.

Control of the civil population, including circulation of individuals and mass movements of refugees, when circumstances require.

Supervision of installations for refugees and the feeding of noncombatants, when necessary.

Criminal investigation activities and custody and disposition of offenders.

Coordination, within limits prescribed by the commander, of military police in subordinate units.

Recommendations as to location of straggler line and collecting points for prisoners of war.

**Signal Officer.** Adviser to the commander and staff on signal matters, including the location of command posts.

Preparation of routine and combat orders relating to signal communication.

Planning, installation, and supervision of the aircraft warning net, when so directed.

Preparation, publication, storage, accounting for, and distribution of codes and ciphers.

Determination of requirements, procurement, storage, and distribution of signal equipment and supplies.

Procurement and operation of signal maintenance and repair facilities.

Technical inspection of signal equipment, within limits prescribed by the commander, and recommendations relative to its care and utilization.

Technical supervision, within limits prescribed by the commander, of signal operations of the command, including coordination of the employment and of the training of signal agencies of subordinate units.

Supervision of the installation, maintenance, and operation of the signal system, including the message center of the unit.

Supervision of such activities pertaining to the signal intelligence, pigeon, and, except in Air Corps units, photographic services as affect the unit.

Examination of captured signal equipment.

**Surgeon.** Adviser to the commander and staff on all matters pertaining to: Health and sanitation of the command and of occupied territory. Training of all troops in military sanitation and first aid. Location and operation of hospitals and other medical establishments and of the evacuation service.

Supervision, within limits prescribed by the commander, of training of medical troops, including inspections.

Determination of requirements, procurement, storage, and distribution of medical, dental, and veterinary equipment and supplies.

Supervision, within limits prescribed by the commander, of the operations of elements of the medical service in subordinate units.

Preparation of reports and custody of records of casualties.

Examination of captured medical equipment.

**Commanders of Attached Combat Units Having No Special Staff Representative.** Commanders of attached combat units having no special staff representative act as advisers to the commander and his staff on tactical and technical matters relating to their units.

**Adjutant General.** Handling all official correspondence, except that pertaining to combat orders and instructions, in accordance with regulations and approved

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policies. In cases for which no policy has been established, he initiates action to secure a policy covering such cases.

Authentication and distribution of all orders and instructions, except those pertaining to combat operations.

Maintenance of the office of record for the headquarters.

Operation of the Army postal service in the unit. In divisions and certain higher units upon mobilization, a postal section is organized and operated by a designated postal officer under the supervision of the adjutant general.

Establishment of the Prisoner of War Information Bureau prescribed by the Hague Convention (GHQ and theater of operations).

Operation, in accordance with approved policies, of activities at the headquarters pertaining to: Classification of all individuals joining the command, their subsequent assignment, reclassification, and reassignment, their promotion, transfer, retirement, and discharge. Procurement and replacement of personnel. Decorations, citations, honors, and awards. Leaves of absence and furloughs. Education (exclusive of tactical and technical). Recreation and welfare and all other morale matters not specifically charged to other agencies.

Custody of the records of all personnel belonging to the command which are not kept in some subordinate unit.

Preparation and distribution of the station list.

Preparation and submission of reports on strength, casualties, captured materiel, prisoners of war, and incidental returns.

Supplying of blank forms, publications, and instructional matter furnished by the Adjutant General's Department.

Operation of office procedure as regards administrative matters, including recommendations as to similar arrangements in headquarters of subordinate units.

**Chaplain.** Adviser to the commander and staff in religious and moral activities of the command.

Supervision of the spiritual welfare of the command.

Conduct of religious services, including funerals.

Spiritual ministrations to the sick and wounded.

Correspondence with relatives of deceased personnel.

Coordination of the religious work of the various welfare societies.

Supervision and coordination, within limits prescribed by the commander, of the training and work of the chaplains of subordinate units.

Recommendations as to assignments and transfers of chaplains.

Providing the services of chaplains for units requiring them.

Preparation of estimates and allotment of funds for religious activities not specifically charged to other agencies of the command.

Preparation of reports relative to the religious and moral activities of the command.

**Finance Officer.** Adviser to the commander and staff on fiscal matters.

Payment of the command, and payments for hired labor for supplies purchased or requisitioned, and for damages or claims.

Custody of financial records.

Custody and disbursement of all Government funds, including such special funds as the commander may direct.

**Inspector General.** Inspections and investigations as the commander may direct. For sphere of inquiry see AR 20-5, 20-10, 20-30, and 20-35.

Inspection of all commands, units, systems, transportation, installations, accounts, and nonmilitary agencies as required by the commander.

**Judge Advocate.** *a.* Adviser to the commander and staff, and to other members of the command in proper cases, on questions of law.

*b.* Supervision of the administration of military justice within the command.

*c.* Review and recommendation as to the action to be taken upon charges preferred for trial by, and records of trial of, military courts.

**Officer in Charge of Civil Affairs** (GHQ and other territorial commands when required). Adviser to the commander on matters pertaining to the administration of civil affairs in the theater of operations (FM 27-5).

Supervision of such agencies as may be established for the required control of civil affairs in occupied territory.

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**Quartermaster.** Adviser to the commander and staff on quartermaster matters.

Determination of requirements, procurement, storage, and distribution of quartermaster equipment and supplies.

Procurement and disposition of real estate and facilities, including leasing.

Procurement and operation of quartermaster utilities, storage, maintenance, and repair facilities.

Operation of—Remount service. General service pool of labor. Salvage service. Graves registration service.

Transportation of troops and supplies by land, water, and commercial air means, except such as may be allocated to another arm or service.

Supervision of quartermaster activities in subordinate units within limits prescribed by the commander.

Examination of captured quartermaster equipment.

**Special Staff Officers of Smaller Units.** In brigades and smaller units, general and special staff duties merge into each other, and one staff officer frequently is charged with duties of both general and special staff nature. In some units the same officer performs the duties of more than one of the staff sections.

*Communication officer.* Adviser to the commander and staff on matters relating to signal communication, including the location of command posts.

Establishment, maintenance, and operation of the signal communication system, including the message center for which his unit commander is directly responsible.

*Gas officer.* Duties are principally those outlined above for the chemical officer.

*Liaison officer(s).* See page 701.

*Reconnaissance officer.* Reconnaissance for routes, positions, and observation posts.

Survey, sketching, and topographic work.

*Surgeon.* Duties are similar to those outlined above for surgeon in larger units.

*Commanders of attached combat units.* Act as advisers on tactical and technical matters relating to their units.

*Adjutant.* Duties include those outlined under G-1 on page 700.

*Chaplain.* Duties are similar to those outlined on page 700.

*Motor officer (maintenance officer).* Adviser to the commander and staff on motor transportation.

Supervision of the operation and maintenance of all motor transportation in the unit.

*Munitions officer* (armament officer in Air Corps units) (duties frequently combined with those of S-4). Adviser to the commander on the status of ammunuition (including pyrotechnics) and the means for its delivery.

Requisitioning, receiving, and distributing ammunition (including pyrotechnics); keeping ammunition records and submitting reports.

In addition, the armament officer supervises the maintenance of aircraft armament equipment and the keeping of armament records including records of bombing and gunnery.

## AIDES

**Position of Aides.** General officers commanding divisions and higher commands and other general officers occupying positions designated specifically by the War Department, are authorized aides, or aides-de-camp, as a personal staff. In garrison, on maneuvers and in theaters of operation the principal functions of aides are to free the general from time-consuming arrangements and details of a personal routine so that he will be enabled to perform his heavy responsibilities with efficiency and continuity.

Officers acting in the capacity of an aide will necessarily be models of military courtesy, tact, appearance, attitude and bearing. Further, general officers will require of aides that they be unobtrusive, quiet, gentlemanly and soldiers.

**Duties of Aides.** A few of the more important duties of aides include planning and arranging for occupation of areas by the general, including supervision of movement of all equipment and personnel in the routine service of the general to the new site and the smooth resumption of operation. In consultation with the Chief of Staff the aide will keep up the appointment schedule to facilitate the transaction of business. Aides are frequently called upon to handle details of social engagements particularly in preparing invitation lists and they may issue

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invitations orally for the general. In the latter case care should be taken to provide the date, hour, place, nature of the event and other pertinent information. When participating in social events, the aide occupies a position similar to that of a guest and will assist with the reception and entertainment functions as decided when arrangements are drawn up. Conduct and performance of duties during ceremonies must be efficiently and expertly performed by aides and will conform to directions contained in Field Manuals 21-50, and 22-5, and Army Regulations 600-30 as amended.

## STAFF PROBLEM

**Situation.** I Corps, including the 1st, 2nd, and 3rd Infantry Divisions and Corps Troops is spearheading the attack of the FIRST Army across France. The Commanding General 1st Infantry Division receives a warning order from Corps informing him that within 48 hours the division would attack on the left flank of the Corps objective.

**Staff Action.** Upon receipt of this order the Division Chief of Staff informs the Chiefs of the general staff sections of the details of the order and requests them to prepare estimates of the situation in their particular phases. These estimates illustrate the need for the existence of staff officers, which is to furnish the complete and continuing information which the commander requires, in order to issue command decisions. A sound decision results from a timely and a proper estimate of the situation. The estimate should be as thorough as the time available will permit. It may thus vary from a short, almost instantaneous, mental estimate, to a carefully written document requiring hours of preparation and the collaboration of various staff officers. In this situation G2 would be called on first to estimate the enemy situation and the terrain. Then G3 basing his plan primarily on the G2 estimate would give the possible lines of action to be taken by the division to accomplish the mission. G4 and G1 might express the factors involved in giving administrative support to the plans of action as outlined by G3. Finally, then, the staff estimates based on the warning order from Corps allows the Division Commander and his Chief of Staff to arrive at a tentative decision, which is given to the staff as a basis for continued planning.

The arrival of the Division Liaison Officer from I Corps with the complete Corps Field and Administrative Orders enables the Division Commander and his staff to formulate the finished plan for the operation. The orders are read by the Chief of Staff to the Division Commander in the presence of the Liaison Officer who amplifies and clarifies all points necessary. Before returning to Corps the Liaison Officer is given a message by the Chief of Staff to the Corps Chief of Staff to the effect that the Division Commander is greatly concerned about the protection of his right flank and suggests that Corps mechanized cavalry be used. This perhaps illustrates the primary missions of a liaison officer—to visit higher or subordinate units to acquaint them with conditions which cannot be explained in orders and to obtain information for the use of his commander and the general staff.

A Staff meeting is called, this time with the addition of the Commanding General Division Artillery, at which the Staff is asked if the Corps attack order alters in any way the estimates previously given. For example, G3 states that his estimate was based on the assumption that only two roads would be available for the move of the division, but that now he finds a bigger zone has been assigned. This alters the tentative plan suggested by G3 for the division's move to the assembly area.

The Commanding General, 1st Infantry Division, having made his decision based on the staff estimates, revised as necessary by the complete Corps orders, issues a directive to the staff. The directive should include all those tactical, intelligence, and any administrative matters which he considers necessary to enable his staff to prepare plans that will carry out the orders of Corps and his own decisions. Since the chiefs of the general staff sections are charged with the preparation of the details of these plans, it is desirable to have them present when the directive is issued. This affords them an opportunity to ask questions, thus obtaining a complete and clear understanding of what is to be done. The presence of the Assistant Division Commander and the Artillery Commander at the same time is also desirable, since it saves time and work in getting out warning orders. Furthermore, the Division Artillery Officer is the technical adviser of the Division

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Commander on artillery matters. Following might be the commander's directive in this situation:

"Give me your attention please, gentlemen. The 1st Infantry Division will march in several columns starting at dark tonight to the EBERBACH area and will attack tomorrow morning; main attack on the south flank; objective; high ground in the vicinity of BLAUFELDEN. The 1st Rcn Tr will precede the division to the assembly area.

Move CT 1 and CT 3 to the area east of BUCHENBACH, so that the main effort can be made south of BILLINGSBACH.

Move CT 2 to the area east of NORDHAUSEN and so located that it makes its main effort north of BILLINGSBACH.

Employ the field artillery as suggested by General (CG Division Artillery) so that it can render maximum support to our operations.

Locate the 3d Infantry in division reserve in an area favoring its employment in the zone of the main attack.

Make provision for security of the new area early tonight in addition to that provided by the cavalry. Protection on the march will be a responsibility of column commanders under SOP.

Let me know, G-2, of any possibility of hostile interference with the march and employment of our division. I want to know if the enemy is capable of making a strong defense against our attack; if so, the location and condition of his forces, particularly whether those forces now located west of ANSBACH will be used against us. Throughout this operation do not lose sight of the fact that the enemy may attack us! I want timely information as to the scheme of maneuver of any hostile attack. Report any indications of hostile withdrawal to Corps. As to terrain, let me know the condition of the valley of Rotel Branch and of the South Branch of ETTE CREEK.

G-4, daylight traffic east of our bivouac area will continue to be restricted to staff cars, messengers and ambulances. All movements tonight into position and to and from supply points will be made without lights. Ask Corps to allocate to us sufficient ammunition for at least two days' attack on a position.

Do any of you see any particular difficulties that may arise in connection with the plan I have just outlined? (Pause.) Are there any questions" (Pause.)

Following the directive, the Chief of Staff issues such additional instructions as he considers necessary to carry out the directive of the Division Commander and to provide for proper Staff coordination. The nature of these instructions, in any situation, will depend, to a large extent, upon the experience and state of training of the General Staff Officers concerned. It is the responsibility of the Chief of Staff to see to it that his assistants produce a coordinated plan embodying the provisions of the Commander's directive.

G2 should supervise the work of his assistants and constantly check on the condition of his available agencies; for example, the Reconnaissance Troop, Artillery observation planes, prisoners of war, higher and adjacent headquarters and maps and photographs. Finally, he should coordinate this information into his estimates. During this period the information learned should be made available to the other staff sections. His estimates should be presented to the commander in an accurate, direct, condensed form.

G3 has two major tasks to undertake without delay. First, the prompt dispatch of the available information to the interested units. This is accomplished through liaison officers and the use of warning orders. Units so warned will not be caught off their guard later on. In the meantime they will be able to make tentative plans of their own. This early information of contemplated operations is always of great assistance to commanders and staffs, and often saves the troops unnecessary hardships. The second task is the prompt initiation of the preparation of plans for the march to the assembly area.

Upon completion of his tentative plan G3 submits it to the Chief of Staff. He may, during the preparation of his tactical plan even go to the Chief of Staff for consultation concerning particular items of the plan, so that he builds on a sound framework which he hopes will receive the final approval of the Division Commander. This illustrates a cardinal principle for the Staff Officer. See other members of the Staff for advice, assistance, and information. Do not go to the commander. Advise the command rather than going to it for advice. During all

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this time G3 keeps the fact in mind that his next major task will be the preparation of detailed plans for the attack. Accordingly, he seizes every opportunity to consider this subject—in other words, to look to the future.

As each section completes its plan the Chief of that section takes the plan to the Chief of Staff for tentative approval and coordination with the plans of the other sections. The final plan is presented to the Division Commander who approves the plan or causes changes to be made as necessary. At a meeting attended by the General Staff, the Division Artillery Officer and sometimes the regimental or separate battalion commanders, the plan is discussed. Since in the discussion points will arise that need amplification and clarification, this meeting, besides acquainting the subordinate commanders with the final plan, serves to insure coordination of effort, a condition that must exist in any organization.

Finally the Division Commander directs the staff to go ahead with the plans outlined and to get out the necessary field and administrative orders.

It should be emphasized again that since the commander is responsible for the action of his unit, the success or failure of a mission is attributable to him. As illustrated, he makes the decisions. The staff members furnish him the tools. The staff, although broken down into sections, is one staff in its operations—it must be a cooperative whole, working toward the common objective, success of the mission. It must work this way or not at all: The G-1 must furnish troops for the G-3 to put into operations, based upon G-2's intelligence concerning the enemy and supported by G-4's supply plan, coordinated by the Chief of Staff, with the Commanding General leading the whole unit and making the ultimate decisions.

## STAFF OFFICER

Recently, in reading an article, by Lieutenant Colonel James W. Bellah in the August '44 *Infantry Journal,* titled 'Staff Officer' we came across much 'food-for-thought' among those many ordnance officers who are now, or at some later date will be, on staffs. Perhaps the moral brought forth in his article following is "The Lives of Great men all remind us, we, too, can make our Lives Sublime."

Prior to considering those phases of ordnance staff work wherein we are primarily concerned it is fitting this experience, of one who really knows, should serve to conclude the general treatment of staff functions.

"The job of being an officer has always, since the beginning of armies, carried with it a spiritual obligation, the rudiments of which are not set forth in any field manual or taught in any schools. That spiritual obligation takes root in the soul of a man when he accepts fully the two basic requirements of his commission.

"These two requirements are first that he satisfy the 'especial trust and faith' his government places in him when he accepts his commission; and secondly, within the limits of any given mission, that he have first regard for the lives, health, safety, comfort, morale and esprit of the men under his command.

"In the Line, the challenge is direct and ever present. The channels are clear-cut and the stimulus always before you. From above, for implicit and intelligent obedience, the orders of your government filter down through the echelons. Below are your men, ever present, ever needing. It is rather a clean, straightforward job—in the Line.

"But on the staff it becomes exceedingly cloudy and at times most unconscionably involved. You no longer deal directly. You have become an agent merely, someone who speaks for another, with no command entity of your own. At times the authority for this speaking comes from more than one source. Decisions, before speaking if possible, must be coordinated and their ingredients combined from several sub-sources of authority. The tendency of the new staff officer at first is toward extreme caution. This can, if not watched, develop into procrastination and murderous slowness. From that point on, it verges quite easily into a bureaucratic frame of mind, and as a result the wartime scheme of things can be, and often is, most dangerously impeded.

"In your immediate view as a staff officer the men are not there. You can't see them. This takes from you—especially if you have come to the staff without extensive troop duty—the ever present stimulus that forces the line officer to face the second requirement of his job as an officer; namely, within the limits of any

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given mission, to have a primary regard for the lives, health, safety, comfort, morale, and esprit of your men.

"But the fact that the men are not there does not remove from you as a staff officer your obligation to them. Nor does it reduce that obligation in the slightest. Your responsibility to them, on the contrary, has increased. You are in a position where your acts, your indecision, your slowness, your carelessness, your procrastination, and your comparatively undetectable inefficiency can affect many more men than your rank would entitle you to command if you were still in the Line. Indirectly, from you stem the orders and the thinking and planning that mean life and death, health or illness, safety or hazard, comfort or discomfort, high morale or low, esprit or gold-bricking—for every man in the command which you as a staff officer serve.

"To a certain degree—whether you are a theater G-3, an assistant special service officer, a chaplain or the theater air officer—you hold in the palm of your hand a portion of the entire composite future of the personnel of the command. And if you fail in the slightest degree there will be blood on your hands. That is why I used the words "murderous slowness" near the beginning of this article.

"Bear that adjective well in mind. For when the staff officer fails in any slight degree the result, when that failure reaches the troops, is almost certain to be wholesale death.

"This article is not, in any sense intended to be an exposition of the technical and professional requirements of the staff officer. You can learn these at Leavenworth and at the War College, or you can acquire them by experience when the challenge of staff duty is passed to you.

"But there are so many good Infantrymen—and others—at present detailed to staff duty, officers moving in fog and confusion and working at jobs in which results and action channels are not clear, officers eating their souls out for the old, dear days of direct action and close contact, that it may be worth while to set them at peace with themselves, if possible, and give a personal template of thought and conduct—one that isn't theoretical but collected from bitter personal experience as a battalion, regimental, division, task force, ground force and theater headquarters staff officer.

"(Those blithe spirits who have carved their staff niches and rest in them in the keen expectancy of immortality—those bright young men, who, with a course here and a course there, have acquired silver leaves and GSC stars without standing reveille at twenty degrees below—and who therefore grant unto themselves a certain inviolable kudos; those wary experts who prefer hotel lobbies to shell fire and excuse the preference by admitting themselves to be experts; and hence God's personal gift to the prosecution of a troublesome war, need read no further.)

"The honest man, however, might well keep right on reading. For there is wisdom here, condensed into seven tangible tenets.

"I remember the ex-staff officer who didn't accept these seven tenets. This man, ten thousand miles away from home and in strange surroundings for the first time in his life, but with a perfectly safe job and distinct obligations to his country and to fighting men, took to bursting into tears after six weeks of it, blabbing to the chaplain and blubbering to the doctor who finally sent him home to get rid of him. At the other extreme is one of the finest officers in the Army dying from overwork, overthinking, over-giving-out, in the foulest climate in the world. Dying remote from glory with nothing but the personal satisfaction of having been a magnificent staff officer to ease his last hours.

### Know the Whole Picture

"At Leavenworth, you will recall the eternal insistence that there be 'no watertight compartments' on a staff, that no section withdraw into itself, and surround itself with mystery. That all sections work togeher in mutual conference, trust, and accord. In short that everybody on the staff knows at all times what everybody else is doing.

"This is at once ideal—and impossible. As you go up the scale of headquarters toward 'higher echelons,' staffs develop 'levels.' These 'levels' meet mutually and confer and out of them come succeeding 'higher level decisions.' It would be ideal, after each 'level' met and conferred if those attending them called their

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subordinates together and retailed the results, bringing everyone into the picture. But this seldom happens.

"What happens instead, especially on combined Allied staffs, is that the subordinates go on plugging on an old program until suddenly they find out that their last three or four days' effort has been completely invalidated by some 'high level decision' they have heard nothing about. I don't say that this is routine—but is has been known to happen.

"Now you can't spend half your time listening at keyholes and the other half buttonholeing major generals and air marshals and admirals saying 'Will you for God's sake, sir, tell me who is doing what to whom and who pays!'

"But you can establish your own levels—at your own rank. Especially on a higher echelon staff, don't hang out eternally with your own section mates. Pick some likely lads of your own rank from every other section you do business with (and some you don't do business with but might at some time) and hang out casually with them. You will be surprised how quickly your horizon broadens and you begin to know things through this method. By no means be a politician or a supersleuth or a bright boy—just pick friends of your own rank in other sections, buy them an occasional dinner, or a drink, and listen. In no time you will have a vast accumulation of scuttlebutt, but at the same time a pretty fair insight into the big picture.

"And you need that to do your job no matter how unimportant you may think that job is.

"Some night, it's going to be you they mean when they say, 'Here's an officer from there now sir, maybe he'll know.' Do you get the emphasis on that word 'may be!' It comes from the disillusioned unshavened lips of a man who fifteen or twenty minutes before was pinned to the ground by enemy mortar fire and didn't like it, and doesn't like you, because it's the right and privilege of every lower echelon officer to hate the guts of every higher echelon officer.

"When that night comes—be able to answer that question. Damn it all, man, it may not be your section that's involved, but they will need the answer just the same, and you are the only one there to give it, maybe. So firstly, then keep yourself up on the whole picture as well as you can, and don't just stand there with your finger in your ear giving them the old staff officer double talk.

"Be able to answer that question.

"Being able to answer all reasonable questions asked by lower echelon is a part of your job. Lower echelon grants you a knowledge of the big picture by asking their questions, even if lower echelon does hate your guts for your greater personal privileges and comforts. Know that big picture in your own way.

"Knowing it helps you to shoot local trouble, being able to make low level decisions on that knowledge helps you to keep the whole business moving and that also is your job. One general once said to his staff in the early days of its formation, 'In all things you will speak for me. In most things, you will be able to consult me. But in some things, at some time you won't. Speak for me then anyway. Keep the ball moving in your own way, and right or wrong, I will always back you up!' That general had a crack staff and a crack division. His finance officer could tell you what was what. Even his veterinary officer knew the score so well that he transferred to the Infantry and got a battalion!"

### Help Somebody Else

"You travel around somewhat, doing your own work. When you do, you pick up odd bits and scraps that will help somebody else do his work. Keep your eyes open for them and help somebody else. It saves time and effort, and time and effort saved, saves soldiers' lives. It's the old stuff you run across in good divisions: 'Listen, you mugs, I'm going down to the Umpteenth regiment, anything I can do for you while I'm there?' And if you help somebody else, he'll help you and if that cooperation spreads through all staff sections, you've integrated, you've got a staff.

"But for God's sake, don't be a bright boy about it, don't be a busybody, don't be too obvious, and don't angle for praise or credit. Just remember, you ceased to be an entity and became merely an agent when you went on the staff.

"Besides you don't want a staff decoration anyway, they're too hard to explain."

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### Watch Your Manners

"You are an agent—not an entity any longer. You speak for the commander, and in many cases you are as near to the commander as many people come. Therefore, you reflect him. Their impression of you is their impression of him. What you do to them, he has done to them. Their personal loyalty to him is in direct ratio to the confidence and loyalty you have inspired in them. Therefore watch your manners at all times. You're a part of the Top of the higher command. You can be a military boor, if you want to, with impunity. Therefore, it is incumbent upon you not to be, as it is incumbent upon a man of breeding to be courteous to the servants in his power no matter how he may treat his friends, his equals, who have the privilege of reprisal.

How many times have you been curtly shuffled off by a higher echelon staff officer? How many times have you had dealings with the higher echelon churl who tactily assumes that because his commander ranks yours, that that gives him the right to kick you around with all the discourtesy and bad manners, he can summon to the act? Well this is not a book of etiquette, but the next time you are tempted—resist. You speak for the entire headquarters, even though the man you speak to only wants to know which road to take. Speak courteously.

### Watch Your Nerves

"Just as the keynote of your manners should be courtesy, so the keynote of your temperament may be the only contact a hundred men of the command ever have with the temperament of the commander himself. Stand by the side of the road, raise voluble hell over some triviality, give vent to the prima donna in you, and that is their picture of the commander himself. It won't do.

"You are not there to put on scenes to relieve your own nerves or your own poor personal discipline. You are only there as an agent. Be a pleasant agent and cultivate the soft voice and the smile. Your pleasantness may give the last warm glow of gratefulness and decent self-respect to that hundred men before they go up the road to Gethsemane.

### Consider the Low Ranking

"In this matter of manners and of temperament, remember it is always more important to show it to the low ranking than it is to the high. When it is exhibited solely so the high ranking, it has another name, a very plain one. Every second lieutenant, every sergeant, every private soldier of lower echelon has the right when on duty to walk into your headquarters and receive decent courteous treatment. It is true usually, that when he does walk in, he brings you a problem. Don't vent your displeasure on him, because he's defenseless.

"Be even more considerate of the low ranking than of the high. Generals have aides to fend for them. Sergeants don't have anyone to bring them in out of the rain, dry them off, and give them hot coffee—not while they are on duty in strange surroundings, unless you do it. See that you do it. It's human and it pays off in your work. You can always get information from the low ranking. They get around. Stimulate them to tell you what they know and you broaden your own picture.

### Work the Clock Around

"Give a twenty-four hour service. Higher echelon staffs have a tendency to adhere to a working schedule, but no war does. It runs the clock around. So must you to meet your spiritual obligation as a staff officer. Duty staff officers don't always meet the requirements. You are not indispensable but there are some things that you can do better than your assistants. Hold yourself available and accessible on short call twenty-four hours a day, day in and day out. There is nothing worse for the morale of troops than to have some poor duffer coming up from them on duty to find that 'you can't see So-and-So until Monday morning. Maybe Lieutenant Schmaltz in Room 412 can help you.'

"And by the same token nothing inspires confidence more than to arrive filthy and tired and hungry in the small hours of the night and have a major general roll out of his blankets and take over the problem.

"You've had both experiences. Remember your reactions to them—and do likewise when you yourself are in the slot.

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### Be Cheerful

"In this world there are a devil of a lot of people of lesser stamina, of a lesser degree of personal self-discipline and a lesser expectancy of hope and a future than you have. There are a devil of a lot of people more bogged in details on the fringe of insanity than surrounds the real art and movement of running a war than you are.

"These people lose perspective fast, and lose hope fast. The ex-Marine sergeant with the DSC who finds himself a music officer in Iceland. The dammed good assistant G-2 who wants to fight, but instead has trained men for four years on dry runs, until his soul has run dry. On any staff you find these lads whose influence on the war is remote. Cheer them up. You are not in business to be a little ray of sunshine, but you are in business to keep the whole business rolling and sunshine will help. They—all of them—are part of the business. See then, that you give credit for good work where credit is due. See then that you go out of your way at times to commend a piece of good detail work that will never see the light of day except through the big picture in which it will be 'microscopic.' See that you keep all the modest, unimportant people 'belonging,' because only in that way will the whole thing roll.

"Possibly, you have never realized this—there comes a point in command as it rises successively through the higher echelons where the personal contact, the impressment of the commander's personality and presence on the consciousness of the troops, ceases to be an ingredient of command. There comes a time when it is physically impossible for the commander to have the necessary contact whereby he can use this ingredient as an aid to command.

"It invariably depends on the commander himself where this disassociation takes place. Usually from Division to Corps. Some rare individuals have kept it up to Army. Many unfortunate ones have lost it at Regiment.

"When it is lost, the commander ceases to be a living personality in the minds of his troops.

"Then it is that they know him mainly through his staff. Then it is that the staff officer, each one individually, becomes a vital ingredient of command itself. Through him and all his acts, the concept of the commander is built in the minds of his men. If the staff officer lives with that spiritual obligation always before him, he does his job. In so far as he fails, the thin red line of command is weakened by that failure.

"And everybody on a staff has a finger on that thin red line. The lowly billeting officer has a finger on that line. A second lieutenant made General Eisenhower the greatest general in the world at 0300 one morning by producing a bed when there were no beds.

"The medical officer can do it, or undo it. 'Here, take another roll of bandage and some sulphanilamide and some adhesive tape (in London at 0600 in the morning). That ought to carry you to Marrakech, but don't fool with it after Marrakech unless the swelling has gone down.'

"A supply captain at Ledo once carried the ball for General Stilwell. 'Don't ask me where I got the carbines because there aren't any—but there they are for you and the sergeant— because you have to have them!'

"The other kind of staff officer is legion. Go into almost any headquarters and you'll find him surrounded by his aides, acolytes, and adjutants. Inacessible and serene—untouchable. At the drop of the handkerchief he will snub, blunder, bumble and insult, but he fights no man's war in any language, serves no one but himself. Furthers no command.

"Shun him as you shun the plague."

### The Ordnance Staff Officer

**Relation to Command and Staff.** In echelons where there is a general staff, from division to theater headquarters and including certain zone of interior and War Department headquarters commands, there will normally be found an Ordnance officer among the special staff officers. As Ordnance officers on any such staff, he will be the adviser on Ordnance matters to the commander and, as a staff officer, will be responsible for the continuous planning required in connection with Ordnance service. Each Ordnance staff officer has two distinct functions: planning and operations. Both must be performed simultaneously. While one

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plan is being carried out, others must be in the process of preparation. The primary role of the staff officer should be that of the planner. While he must supervise the execution of his plans by units placed under his control for that purpose, he should delegate actual operations to subordinates. With the other staff officers, he assists the commander in the exercise of his command but by the nature of his duties as staff officer exercises no command function. Any such exercise of command over troops is a separate role.

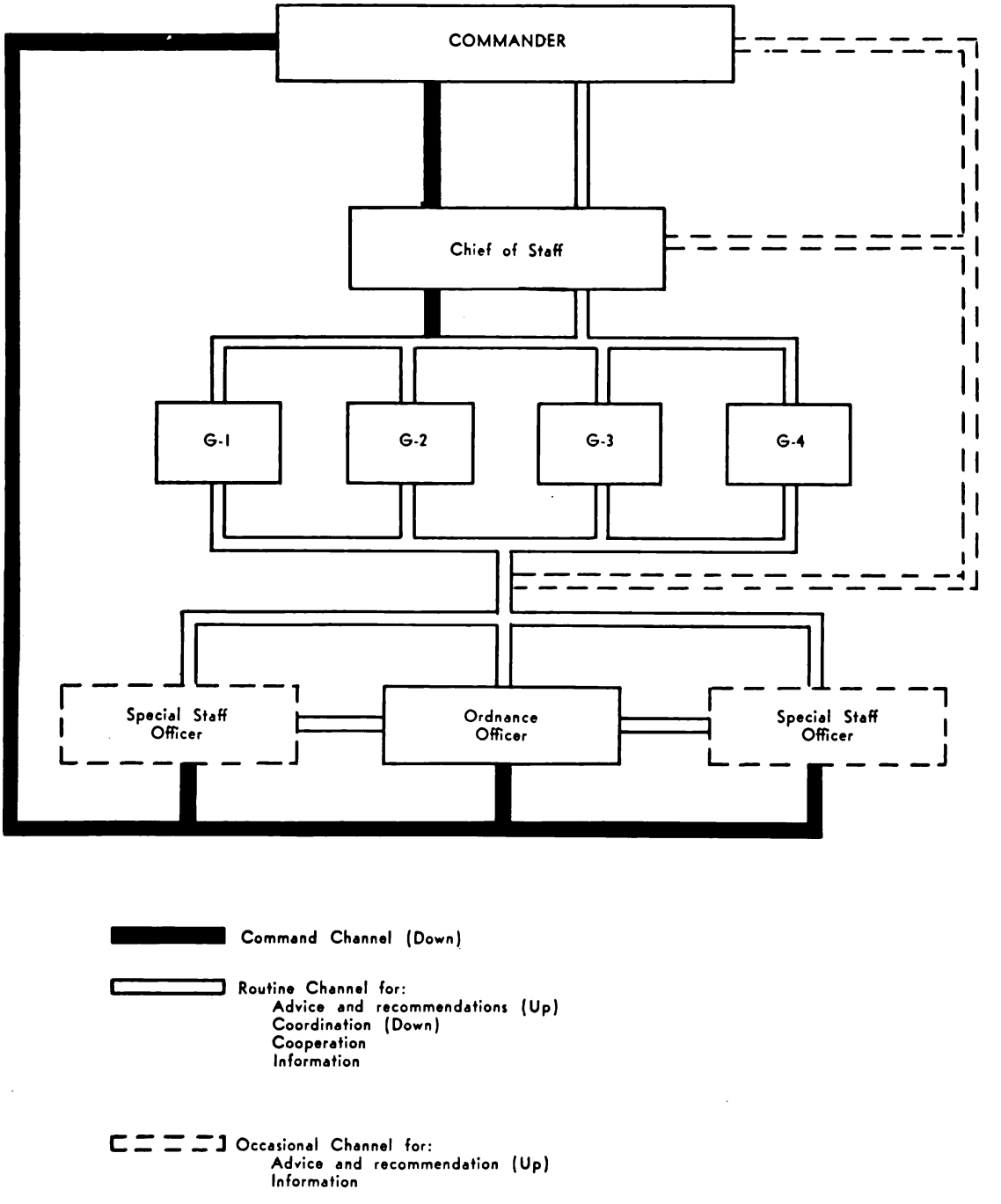



**Figure 2. Relationship of Ordnance Staff Officer to Commander and General and Special Staffs.**

**Requirements for an Ordnance Staff Officer.** The nature of staff duties calls for certain personnel requirements as well as technical ones and administrative and executive experience. Reference is made to the quotation from "The Staff Officer" in the preceding section of this chapter for the ideal type of staff officer

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and for a description of the manner in which he should conduct himself. As an Ordnance officer in addition to the aforegoing he should have a comprehensive knowledge of Ordnance materiel, its nature, uses, capabilities and limitations, from the standpoint of a technician. He should be familiar with the means of supply—both ammunition and Ordnance general supplies—and the requirements of maintenance. In addition, a basic knowledge of tactical operations of combat troops will put him in an improved position to anticipate the consumption of Ordnance materiel in battle and the essential planning that will maintain Ordnance service on the very heels of the combat troops.

As the adviser on Ordnance to his commander, he must be in a position at all times to answer these questions:

What Ordnance materiel do we require?

How much of that is in our possession in serviceable condition?

What is being done to supply the balance and maintain those levels?

The commander is primarily concerned about the results rather than how the results are obtained. From this it will be clear that the Ordnance officer must always have at his call the status of Ordnance in the organization, both as to specific units and the command as a whole.

**Relationship to Command and General and Special Staff.** The Ordnance staff officer, as has been said repeatedly, is not an assistant G-4 nor is he subject to the command of the G-4 of the same staff. While his staff duties are carried out through the G-4 section and in close collaboration with the G-4, he is actually an assistant to the commander and, as such, is subject to the command authority of the commander alone. A competent G-4 does not tell a competent Ordnance officer how to prepare and execute plans for Ordnance service; instead he seeks the latter's advice in support of the tactical plan, gives him the required instructions and directions from higher headquarters, contributes the benefit of his more complete view of the whole supply and evacuation problem, and coordinates the Ordnance service plans with those of the other services in order to make the entire unit's supply and evacuation plans an integrated whole.

Figure 2 will best illustrate the relationship of the Ordnance staff officer to the commander and the general staff and other special staff members of the same echelon.

*The Ordnance Staff Officer's Duties in General.* Following are his general Ordnance duties and responsibilities:

Advice to the commander and staff regarding Ordnance in all its phases, particularly on plans for Ordnance service in the unit.

Provision for the supply of Ordnance general supplies to the unit.

Similarly, provision for ammunition.

Provision for maintenance of such Ordnance materiel.

Operations of storage facilities for such materiel.

Plans for evacuation of Ordnance materiel and, to some extent, for the recovery of it from battlefield areas.

Reclamation and renovation programs.

Disposition of abandoned, unserviceable, salvaged and captured Ordnance materiel.

Technical inspection of Ordnance materiel.

Ordnance intelligence activities within his unit.

Supervision, within the limits prescribed by his commander, or Ordnance activities in subordinate units.

Command of Ordnance troops not assigned or attached to subordinate units (separate function when authorized by commander).

Bomb disposal (as required).

Instruction of using troops in the maintenance of Ordnance materiel within their capabilities.

Other miscellaneous duties, including the keeping of diaries of important events involving Ordnance, provision for the security and safety of Ordnance materiel, safeguarding of Ordnance technical information.

*Channels of Communication.* There are two recognized channels of communication between military commands—these are command and technical channels.

*The command channel* follows the line of command authority.

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*The technical channel* is expressly authorized in the discretion of commanders to keep the command channel free of administrative details which can be handled properly by special staff officers. This is the route of direct communication between staff officers of the same branch, confined to normal technical operations not affecting command policies and to reports which have been authorized by higher commanders. Clearly, this is a typical Ordnance channel between staffs.

Exceptions would include those cases for which, in emergencies or involving critical situations, communications might be allowed directly between officers.

*Associations With Others. The Ordnance Staff Officer as a Liaison Officer.* It is important to understand that in making plans and in the execution of his duties, the Ordnance staff officer is in a position to "make or break" himself and the efficiency of Ordnance service by the conduct of his relations with others—whether other Ordnance officers or special staff officers or unit commanders. These personal contacts are especially significant. In one form or another, this is the liaison function—the provision for a relationship between units which has as its purpose the promotion of cooperation and coordination by personal contact. (See "Ordnance Liaison," this chapter.

## ORDNANCE PLANNING

**Relation of Plan to Operations.** It is well to emphasize here that the commander of any unit is responsible for the proper functioning of all its service elements, including Ordnance. The ordnance officers of the unit, whether it is a division or an army, give the technical Ordnance advice that aids the commander in the preparation of his plan. The Ordnance plan—the plan for the effective use of Ordnance personnel and materiel and facilities for the benefit of all troops in need of them—is one part of the commander's whole plan. As such, it is the *Ordnance Plan* and it fits into the pattern of the complete supply and maintenance plan that the G-4 or other unit supply and evacuation officer presents the commander of the entire unit in support of his tactical plan for the ensuing operation. As differentiated from an SOP, which contains standing instructions on policies of the command, the Ordnance plan specifically covers the detailed planning for a specific operation.

Once the plan is accepted and ready for execution, the responsibility for seeing to its execution rests with the Ordnance officer of the unit. *The Ordnance Plan* gives the impression of something that is static and inflexible. Actually *Ordnance Planning* is a more apt expression because it gives the impression that it is a continuous process with flexibility as a guiding factor. Yet, clearly, for a particular operation, there must be a particular "plan" that covers the requirements of the situation in all details and also includes the alternatives which provide for flexibility. There is no substitute for prior planning, no matter how hackneyed the expression might become, and this is as true of Ordnance as it is of any other branch. Its importance cannot be overemphasized. This is where the contribution of the Ordnance staff officer is the greatest and his capacity felt the most by the combat troops.

**Form of the Plan.** There is no standardized form. Certain essentials require attention. They make up the plan. Some of these essentials must be published for the command. If so published, they will normally be in paragraph four of the field order among the pertinent administrative details; or, if an administrative order is published at the same time, it will include those essentials of the Ordnance plan. Every complete administrative order will have some references to Ordnance. If the references are too voluminous for inclusion in the body of the order, they will be placed in an annex to it. Occasionally a fragmentary order issued through G-4 in the form of a message contains changes in the Ordnance plan. The unpublished portions contain information essential to the coordination activities of G-4.

**Sections of the Plan:** The Ordnance staff officer will usually find it is convenient to divide his plan into sections, including the following:

(1) The Ordnance troop requirements and the assignment of them to particular support missions.

(2) Ordnance maintenance, including recovery and evacuation requirements, reclamation and salvage. (Remember that these include instructions to the users

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of Ordnance materiel. It is the company or battalion or army SOP that sets up procedures for the day-to-day operations of Ordnance troop units.)

(3) Class II and IV supplies. (Here we mean the plan for the obtaining of supplies by the combat units as well as any special plan for the flow of supplies through Ordnance channels to the lowest Ordnance echelon from which the combat units obtain Ordnance materiel.)

(4) Class V supplies. (Here we must distinguish between the plan for internal operation of an ASP, which is a matter of company SOP; and the locating and publishing of the site of the DAO; by stipulating of units of fire which may be dumped on positions by the artillery and the assignment of certain ASP's to support designated combat units, etc. which belong to the plan.)

(5) Reclamation and disposition of captured enemy Ordnance (some of which instruction is of course contained in SOP's).

(6) Other aspects of Ordnance service, including the disposition of Ordnance materiel by evacuation or destruction when necessary to prevent capture by the enemy.

**Source of the Plan:** There are certain things an Ordnance staff officer must know before he can prepare a plan for a particular operation. Most of them are items which he must be abreast of constantly, so it is not a situation that is entirely new to him with each operation. He will aline all factors in the current tactical situation which are pertinent to Ordnance service. The following check list, from proposed revision of FM9-5 is a guide. Every item will not always be applicable; and certain problems will invariably arise which are not listed here. When all the necessary information is available, the real planning begins. Actually, planning is continuous—it never ceases.

## CHECK LIST FOR ORDNANCE PLANS

1. *INFORMATION TO BE OBTAINED BY ORDNANCE OFFICER BEFORE FORMATION OF PLAN.*
   a. Plan for tactical employment of the command.
   b. Administrative orders and approved plans of higher echelons.
   c. Administrative decisions of the commander and general staff.
   d. Tentative plans of other supply services.
   e. Tabulation of major items within the command, both authorized and actually on hand.
   f. Complete set of maps.
2. *ORDNANCE UNITS.*
   a. Assignment of available ordnance companies to specific duties and locations, or to lower or higher echelons.
   b. Assignment of ordnance companies attached from higher echelons or detached from lower echelons.
   c. Instruction concerning inspections:
      (1) Assignment of inspecting parties to units to be inspected.
      (2) General instructions concerning inspections in all echelons, including:
         (a) Form and routing of reports.
         (b) Authority for action by inspectors.
   d. Location of ordnance office and installations.
3. *ORDNANCE GENERAL SUPPLY.*
   a. *Requirements:*
      (1) Based on.
         (a) Tactical plan.
         (b) Number of major items authorized for all units within the command.
         (c) Administrative decisions of the commander and the general staff.
         (d) Estimates of commanders of depots, ordnance groups, battalions, maintenance companies.
         (e) Available supply in terms of days of supply.
      (2) Stated in terms of:
         (a) Days of supply.
         (b) Tons.
   b. *Ordnance general supply installations.*
      (1) Number and locations of depots in accordance with:
         (a) Tactical plan.

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(b) Administrative decisions of the commander and the general staff.
(c) Location and employment of maintenance companies and line units.
(d) Units to be supplied by each depot and by each maintenance company.
(e) Road nets, rail lines, and trails.
(f) Security measures.
(g) Distances and time involved in resupply.
(h) Enemy capabilities, especially the location and range of artillery and the frequency of aerial reconnaissance and bombing.
(i) Terrain.
(j) Bivouac facilities, including availability of water.
(k) Construction of roads within and to depots, including liaison with the Engineer Officer.
(l) Types and quantities of items to be stored and issued at each installation.
(m) Types and quantities of estimated daily issues and receipts at each depot.
(2) Supply levels for each depot and each maintenance company.
(3) Initial stocks for each depot stated in terms of days.
(4) Replenishment requirements for each depot.

c. *Reports.*
(1) How submitted.
(2) When submitted.
(3) Items to be reported.

d. *Transportation.*
(1) Means of transportation available.
(2) Amount and kind of transportation available.

e. *Additional data, pertaining to communications zone plans.*
(1) Construction of buildings, rail sidings, docks, etc.
(2) Location and operations of control points.
(3) Reports from depots to control point.
(a) When submitted.
(b) How submitted.
(c) Dues-out reports.
(d) Critical item reports.
(4) Scheduled shipments from the zone of the interior.

4. *AMMUNITION SUPPLY.*

a. Computation of the weight of, and items to be included in, the unit of fire for the command.

b. *Requirements.*
(1) Based on:
(a) Tactical plan.
(b) Administrative decisions of the commander and the general staff.
(c) Number of serviceable weapons on hand within the command.
(d) Estimates (including type of fire) of the artillery commander, the antiaircraft officer, and of other staff officers.
(2) Stated in terms of:
(a) Units of fire.
(b) Complete rounds.
(c) Tons.
(3) Available ammunition in terms of units of fire and rounds.

c. *Ammunition supply installations.*
(1) Number and locations of ammunition depots, ASP's, railheads and other installations, in accordance with:
(a) Tactical plan.
(b) Administrative decisions of the commander and the general staff.
(c) Location and employment of using units.
(d) Units to be supplied by each ammunition supply installation.
(e) Road nets, rail lines, and trails.
(f) Security measures.
(g) Distances and time involved in resupply.
(h) Enemy capabilities, especially the location and range of artillery and the anticipated frequency of aerial reconnaissance and bombing.

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(i) Terrain.

(j) Bivouac facilities for ammunition troops, including availability of water.

(k) Construction of roads within and to ammunition supply installations, including liaison with the Engineer Officer.

(l) Types and quantities to be stored and handled at each installation.

(m) Types and quantities of estimated daily issues and receipts at each installation.

(2) Stocks in each ammunition supply installation.

(a) In terms of:

*1.* Units of fire.

*2.* Complete rounds.

*3.* Tons.

(b) By type.

d. *Issue and replenishment.*

(1) Original credit allocations.

(2) Quantity on hand.

(3) Allocations to lower echelons.

(4) Reports.

(a) How submitted.

(b) When submitted.

(5) Replenishment requirements in terms of:

(a) Units of fire.

(b) Complete rounds.

(c) Tons.

e. *Transportation.*

(1) Means of transportation available and amount required for:

(a) Initial stocking.

(b) Replenishment.

(c) Rolling reserves.

(2) Schedule of shipments to ammunition supply installations.

f. *Labor requirements at each ammunition supply installation.*

g. *Additional data, pertaining to communications zone plans.*

(1) Computation of requirements and available ammunition in terms of day of supply as well as units of fire, rounds, and tons.

(2) Construction of buildings, railroad sidings, docks, etc.

(3) Schedules of shipments from the zone of the interior.

5. *MAINTENANCE.*

a. *Requirements.*

(1) Amount and type of equipment to be maintained.

(2) Collection points for damaged or abandoned equipment.

(3) Evacuation.

(4) Reclamation facilities.

b. *Ordnance maintenance installations.*

(1) Number and location in accordance with:

(a) Tactical plan.

(b) Administrative decisions of the commander and the general staff.

(c) Location and employment of maintenance companies. (This must be coordinated with 3b (1) (c) ).

(d) Units to be maintained.

(e) Road nets, rail lines, and rails.

(f) Security measures.

(g) Terrain.

(h) Bivouac facilities, including availability of water.

c. *Reports.*

(1) How submitted.

(2) When submitted.

(3) Items to be reported.

d. *Additional data, pertaining to communication zone plans.*

(1) Construction of shops.

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6. *MISCELLANEOUS.*
   a. *Disposition of stores.*
      (1) During an advance.
         (a) Movement of new location.
         (b) Transfer of responsibility to other unit.
      (2) During a withdrawal.
         (a) Movement to new location.
         (b) Destruction.
   b. *Security and fire prevention.*
   c. *Training program.*

In submitting the plan to G-4, the ordnance officer will probably find it advantageous to arrange it in three parts for convenience:

(1) The portions which belong in the administrative order (in the field order if no administrative order is published at that time).

(2) Recommendations concerning operations which require coordination and approval by G-4 (and, often, either the chief of staff or the commanding general)—such as prospective changes in locations, stockages of ASP's, additional transportation requirements, etc.

(3) Detailed information for the use of Ordnance personnel in the unit in the execution of the plan. (Actually, this has the effect of temporarily supplementing the SOP of the unit for the particular operation.)

*Sample Ordnance Plan for Division:* On the basis of the above pertinent suggestions, the following sample plan for an Infantry Division in an attack against a deliberately organized defense is taken as an illustrative example.

*PART I. INFORMATION TO BE INCLUDED IN THE ADMINISTRATIVE ORDER*

*AMMUNITION*

*Location of Installations*

ASP#1—Verchocq Woods 95.9—34.0

ASP#2—Crequy Woods, ¾ mi. W. of Maisoncelle 94.8—30.5

*Location of DAO*

Rd. jnc. 1 mi. SW of Radingham 0-15—30.5

*Unit Ammunition Levels*

Artillery units 1½ U/F

Others unchanged

*GENERAL SUPPLY AND MAINTENANCE*

*Location of Installations*

105th Ordnance Light Maintenance Company—Orchard ¼ mi. N. of Rollez 97.3—31.4

*Collecting Points*

105th Ordnance Light Maintenance Company—Orchard ¼ mi. N. of Rollez 97.3—31.4.

*OTHER ADMINISTRATIVE MATTERS*

No change

*PART II. RECOMMENDATIONS TO G-4*

*AMMUNITION*

That a recommendation be submitted to army, that ASP's No. 1 and No. 2 be stocked with 2.3 U/F of artillery ammunition and 1.5 U/F infantry ammunition.

That arrangements be made for ASP's No. 1 and No. 2 to send copies of status of stocks reports to the DAO.

*GENERAL SUPPLY AND MAINTENANCE*

That the 105th Light Maintenance Company be authorized to maintain 3 days' supply of parts and supplies, and a 3% reserve of all major items.

That a recommendation be submitted to army that field depot No. 6 be stocked so as to provide for the 47th Infantry Division a 6-day reserve of parts and supplies and a 10% reserve of all major items.

That arrangements be made for the 97th Ordnance Medium Maintenance Company to pick up the 105th Ordnance Light Maintenance Company's requisitions upon Army Field Depot No. 6, take them to the depot, and deliver the items to the 105th Ordnance Light Maintenance Company.

That divisional units follow the SOP, this Headquarters, 11 June 1944, in regard to all supply and evacuation of ordnance materiel of all classes.

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*PART III. INFORMATION FOR USE OF ORDNANCE TROOPS*

*AMMUNITION*

The DAO will submit to the DOO by 1000 each day a summary of ammunition drawn by divisional units during the 24-hour period ending at 0600.

*GENERAL SUPPLY AND MAINTENANCE*

Reports of deadlined major items will be submitted to the DOO daily before 1000 hours.

A more detailed and comprehensive plan for the Ordnance Service of an Army is illustrated in Annex 4.

## STANDING OPERATING PROCEDURES

**Definitions.** All procedures which represent operational policies of the command should be contained in a single directive and be understood as being continuously in effect until further notice. This directive, known as the Standing Operating Procedure (SOP), is as important to the operation of Ordnance service within an army or a communications zone as to the daily operations of a medium maintenance company. In either case SOP's are written for Ordnance troops but the effect will be felt ultimately by all units who have need of Ordnance service.

The Ordnance staff officer is of course vitally concerned about the efficiency of Ordnance service in his echelon. A written standing operating procedure showing the policies and practices desired by the Ordnance staff officer and his assistants, to be carried out by subordinate troops in giving Ordnance service, will promote that efficiency.

**Preparation.** No set form is established for Standard Operating Procedures. The Ordnance officer will generally consider the following general groups of Ordnance service in drawing up the SOP:

Maintenance, Evacuation, and Recovery Policies.
General Supply Policies.
Ammunition Supply and Control Policies.
Inspection Policies.

At the close of this chapter in Annexes 2, 3, 5, 6, 7, and 8 will be found illustrative examples of the various standing operating procedures encountered in the field. These samples show clearly wide variations which may be expected in the methods of treatment and scope, as well as the great variety of different details set up in the form of policies for the lower echelons. It is impracticable to include complete SOP's for base section and communications zone operations since these are exceedingly long and bulky, as a result of the elaborate details included. Outlines of the SOP only are submitted for these two types. Let us now consider in detail the employment of the factors listed above.

**Maintenance, Evacuation, and Recovery Policies.** The purpose of Ordnance maintenance is to keep ordnance materiel in such condition that it may be operated at maximum efficiency and that its useful life be prolonged to the utmost. This is accomplished by supervision and instruction of personnel responsible for first and second echelon maintenance and the performance of third, fourth, and fifth echelons of maintenance. The maintenance of ordnance materiel is the responsibility of the commander concerned. The duties of Ordnance officers in connection with the maintenance of ordnance materiel are based upon their responsibilities as staff officers of the commander concerned and as representatives of the Chief of Ordnance.

The Ordnance staff officer, following the policies of the commander, will be the one to whom the commander transfers the immediate burden, for the Ordnance service of the command—as we have already made clear. It is the same with maintenance as it is with general supply and ammunition. And this, too, must be coordinated with the G-4 of the command for development of the whole supply and maintenance plan of the command.

In this role, the Ordnance officer is concerned with (a) organizational maintenance (done by the using units, and, therefore, first and second echelon maintenance) and with (b) technical maintenance (done by the supporting Ordnance troops, and therefore, third, fourth, and fifth echelon maintenance). This means, then, that he is interested in (a) organization maintenance troops and their main-

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tenance equipment and supplies and in (b) Ordnance maintenance troops and their equipment and supplies. And, inevitably, he is interested in recovery and evacuation plans—since this is what feeds the maintenance channel with the job it does for the combat troops.

Specifically, the Ordnance staff officer of any echelon has problems like these to answer in his planning of maintenance and evacuation:

What is the general nature of the operation including such information as climate and kind of terrain?

What maintenance units are available (including organizational)?

What is the present assignment of available units?

Are they adequate for the assigned jobs in anticipation of the tactical situation?

Development of an evacuation plan to assist the combat units.

Notification to the supported troops of the maintenance and recovery support of their organizational maintenance.

**General Supply Policies.** It is stated in FM 9-5: "Accomplishment of the supply mission of Ordnance service in the field requires that each item of Ordnance supply be available to all troops in the quantity required, at the time needed, within easy reach of the troops, and that it be in serviceable condition."

The question immediately arises: "How much of this is the particular responsibility of the Ordnance staff officer of any echelon involved?" The answer lies in what the commanding officer of the echelon expects. If Ordnance supply is good or bad, the Ordnance officer is the one to praise or blame. Therefore, he must assume the responsibility for doing everything in his power to see that the supply of Ordnance materiel is sufficient for the present and will be sufficient for any needs which can be anticipated. Except for the War Department echelon, there is always a higher echelon with which the Ordnance staff officer is coordinating and anticipating in connection with supply. The first concern is the source of supply; next the question of prescribed loads; and finally the flow that supplies those loads and resupplies them to the levels required for operations from day to day.

*Sources.* In each echelon the Ordnance staff officer will plan supply schedules based on these sources: (1) the higher echelon (zone of interior being the initial source normally); (2) procurement within the theater from any available local source; (3) the recovery and reclamation of unserviceable materiel; and (4) the adaptation of captured enemy materiel.

The staff officer must arrange for procurement for his echelon from these sources. It is his responsibility (subordinate officers will perform the operations involved in the procurement) to plan for their operations, based on their reports and estimates and the anticipated tactical requirements of the combat commander.

In exploiting local sources, the Ordnance staff officer might be following a policy he planned and had approved by proper authority; or he might be supervising the execution of a policy of a higher echelon that has been prepared for him. In either case he has a particular responsibility.

The higher echelon will of course prescribe requirements for the recovery, reclamation and renovation of unserviceable materiel with the objective of further use by troops. The Ordnance officer will see to it that all facilities are used to the maximum for this purpose. Closely allied is the provision for conversion and adaptation of captured enemy materiel as an added source of supply.

Prescribed loads present these two responsibilities: (1) that of supervising the supply of prescribed loads of tools and spare parts and Ordnance general supplies to the Ordnance units assigned or attached to the echelon; and (2) that of supervising the supply of prescribed loads of Ordnance materiel to the combat troops.

*Flow of Supplies.* As stated in FM 9-5, "The initiation of the flow of Ordnance supplies occurs within the zone of the interior. In the zone of the interior, this flow is directed by the Chief of Ordnance in accordance with established priorities and policies of the War Department. As this materiel passes into the theater of operations, the responsibility for its control passes from the Chief of Ordnance to the commander of the field forces, who exercises this control through ordnance staff officers."

There is the flow of ordnance ground supplies from ports of debarkation to depots in the communication zone; from there to combat zone depots and then

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to the using units, with the Ordnance staff officer in each echelon responsible for the continuance of the flow through his echelon on schedule.

The flow of supplies must be correlated to actual requirements as nearly as is possible. This is the function of stock control. It is the ultimate responsibility of the Ordnance staff officer so far as the planning for stock control is concerned in the particular echelon.

The following chart illustrates the position of Ordnance staff officers in the flow of supplies, as shown in FM 9-5.

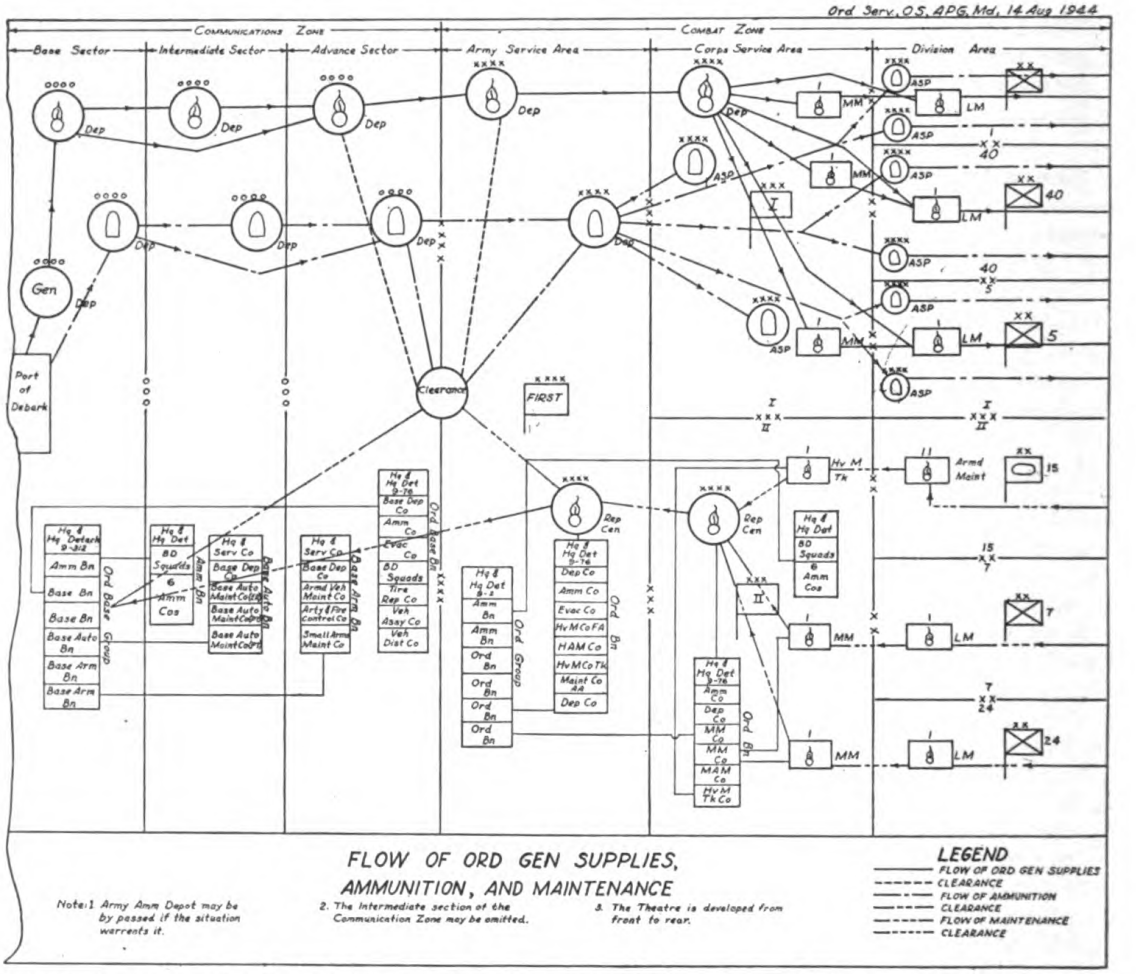



**Figure 3. Flow of Ordnance General Supplies, Ammunition, and Maintenance in a Theater of Operations.**

**Ammunition Supply and Control Policies.** Adequate and timely supply of ammunition to combat troops is indispensable to the successful prosecution of any military operation. No other type of supply is so vital to combat. The quantities and tonnage involved, the necessity for safety measures, and the wide variation in requirements due to changes in the tactical situation create a complex supply problem.

That "complex supply problem" rests significantly upon the Ordnance staff officer. His responsibilities are chiefly with (1) ammunition requirements for his echelon; (2) arrangements for the required stockages; (3) control of the flow of ammunition through the echelon; (4) supervision of the distribution within the command; (5) reports; and (6) continuous planning for future requirements.

*Ammunition Requirements.* The Ordnance officer in certain echelons, chiefly Division and Corps, has a more immediate responsibility for ammunition supply than for Ordnance general supply or for maintenance. The need is often critical. Fundamentally, he has the duty of aiding in the estimate of requirements and then seeing that they are fulfilled. This is where he must act in close collaboration with staff officers in the operations section.

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For example, the corps commander, based upon army directions, plans a tactical operation involving the whole corps. The nature of the operation will determine the quantity and types of ammunition. Ammunition requirements for the corps, based upon the several divisions' missions, must be estimated in advance and preparations made (1) for stocking depots and ASP's in the area and for making the ammunition available to the divisions and corps troops at the most accessible points and in the required quantities and types. (For an explanation of the "target" system of estimating requirement, see chap. 4, vol. III.)

*Arrangements for the Required Stockages.* When requirements are known it is essential that the stockages be made available at the nearest supply points. The system of supply should include some form of notification, in the form of an allocation or otherwise, to the effect that the stocks are available. This is particularly important if further allocation to a subordinate echelon is essential.

*Control of the Flow.* The system of requisition and allocation described above is the method of control normally. Whether detailed allocations on paper are made or there are blanket allocations in fulfillment of a required "target", the net effect is the same. There is the required control.

Within most echelons the Ordnance staff officer will be responsible for setting up a system of authorizing distribution of amounts to using units subject to that command. So-called transportation orders are typical. See Volume III, Chapter 4, Ammunition Supply.

*Ammunition Reports.* Normally, the higher echelon will prescribe a system of reports by which the Ordnance staff officer will submit figures for the specified period covering the ammunition drawn by units in that command and the amounts expended. It will be his responsibility to obtain such reports from using units as will satisfy the requirements of the next higher echelon. (See Vol. III, Chapter 4.)

*Continuous Planning.* It is clear that planning for the future is essential to adequate ammunition supply. Continuous liaison with G-4 and, through him, with G-3 of the same staff is a requirement. The Ordnance Staff officer must be informed always of proposed tactical plans. There is no period in operations when ammunition planning is not important.

In ammunition planning, these are some items for consideration:

The weight and composition of the basic load and of a unit of fire for the command. (This is not alone for requisitioning but also for anticipating transportation problems. While such a problem belongs specially to the G-4 and the using units, the Ordnance officer is in a position to advise them of the nature and extent of their problem.)

What are the particular requirements now?

What is the amount available—in basic loads and stocks at ASP's "earmarked" for the command by higher echelon?

Are the established ASP's and depots adequate for support of the command?

Recommendations for location of new ASP's and depots.

Arrangements for allocations and for submission of reports.

**Inspection Policies.** The role of the Ordnance staff officer in relation to ordnance inspections and his particular interest in them will be clear if we see the purpose of such inspections. We refer to those which are technical inspections designed to examine and service Ordnance materiel in the hands of troops or in storage for their use with emphasis of course upon the theater of operations.

According to TM 9-1100, the purpose is to provide certain checks on condition for the determination of the following:

*Serviceability.* To determine the serviceability, completeness, and readiness for immediate use in combat of the materiel with which troops are equipped, with special reference to the safety and proper functioning of such materiel.

*Difficulties in Use.* To discover the cause of difficulties that troops may be experiencing.

*Modifications.* To check on the application of all authorized modifications.

*Preventive Maintenance.* To instruct the using personnel in the proper preventive maintenance procedures.

*Protection of Government Property.* To determine if adequate facilities have been provided and that every reasonable precaution is being taken to prevent

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deterioration of general supplies and the loss of arms, ammunition, and other ordnance materiel.

*Storage of Ammunition and Explosives.* To determine if these items are stored in accordance with instructions.

*Render Assistance to Using Arm.* To assist using organizations in maintaining a high rate of maintenance and efficiency of the ordnance materiel with which they are equipped.

*Corrective Measures.* After determining the cause and extent of unserviceability, to correct such deficiencies on the spot or to advise on corrective measures to be taken to remedy the defects found; to determine if minor repairs can be made in lower overhaul and repair facilities, without sending to arsenals or designated overhaul shops. To determine the need for complete general overhaul, and if so, recommend authorized channel for overhaul.

Since the overall job of the Ordnance staff officer is that of supervising ordnance service in the unit, all these purposes of ordnance inspections are obviously pertinent to the performance of his responsibilities.

The Ordnance staff officer, subject to higher authority in the unit, will do the following:

Prepare plans and policies for the inspection of Ordnance materiel in the hands of troops.

Prepare similarly for inspection of materiel in supply installations of the echelon and available for distribution to troops of that unit.

Decide upon the composition and methods of operation of inspection teams of the unit Ordnance personnel.

Make such arrangements with higher commanders, through the proper channels, as are necessary for proper notification, advance planning and using unit assistance as will be necessary.

If and when required, report in the form requested, on the results of inspections, showing the condition of ordnance materiel in the unit.

Prepare to take such remedial actions as are essential to insure any necessary improvement in the condition of such materiel, including means of instruction of the unit personnel by the ordnance troops subject to him.

In this way, the Ordnance staff officer is using inspections to facilitate operations. They go together. In no other way will he be able to answer the question of his commanding officer on the sufficiency and serviceability of ordnance materiel in the unit for combat.

## ORDNANCE LIAISON

Ordnance organizations exist to serve combat units and proper liaison is an essential part of this Ordnance service. It is not just a duty for specially designated personnel but a function of every person who wears the bomb and flame to assist in developing an understanding of Ordnance problems among the men of using units and also to become conscious of their problems.

Moving machinery requires proper lubrication for smooth and continued operation. A similar ingredient must be present in an army to insure close cooperation of the many and varied units. But unfortunately this ingredient cannot be procured in cans like lubricating oil and applied as required. It must be present in the personalties of the personnel involved. Liaison is the army term applied to this lubricating process by which the components of a military organization are brought to a high degree of cooperation and coordination.

The need for liaison is a comparatively modern development of warfare. When a commander could stand on a hill and hold the complete battlefield in his view, it was possible for him to effect the necessary coordination. As warfare became more and more complicated, the eyes and the ears of a commander were inadequate and required extensions. Signal developments aided in binding the units more closely together but still the commander found himself incognizant of many details.

In World War I, Marshal Joffre, of the French Army, decided to keep close control of the French Armies in his own hands despite the fact that they were strung out over hundreds of miles. To assist him in keeping abreast of developments, he devised a system of vertical liaison by which headquarters officers were

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assigned to field units. They were actually extensions of the Old Marshal's eyes and ears, keeping him informed on many phases of the war which would not have reached him through normal channels.

Unfortunately the liaison officers came to be regarded as headquarters spies, a development which greatly impaired their efficiency. The United States Army has been particularly careful to avoid a similar attitude by requiring the liaison representatives to work closely with the commanders of units to which they are attached and to advise the visited commander of the contents of reports made.

The most familiar instance of close liaison in the United States Army is probably that between infantry and field artillery units. Both arms recognize their interdependence and the need for close cooperation of the infantry-artillery team. Field artillery officers are assigned for duty with infantry units and infantry officers are present with artillery batteries. Men assigned to these jobs are trained for the work and are fully aware of the vital roles which they play.

In regard to the work of a liaison officer, the Field Manual says:

"The maximum effectiveness of liaison missions will be secured if the officer selected for this duty:

Has the confidence of his commander.

Is favorably known, either personally or by reputation, by the commander and staff of the unit to which sent.

Has a sound and comprehensive knowledge of tactics.

Possesses tact.

Has had experience or training as a liaison officer.

"On arrival at headquarters to which sent, the liaison officer should:

Report promptly to the commander, stating his mission.

Offer his assistance to the commander, if appropriate.

Arrange for transmission of messages he may wish to send.

Arrange to obtain information required by his mission.

Familiarize himself with the situation of the unit to which sent.

"During his liaison tour, the officer should:

Further harmonious cooperation between his own headquarters and that to which sent.

Accomplish his mission without interfering with the operations of the headquarters to which sent.

Keep himself informed of the situation of his own unit and make that information available to the commander and staff of the unit to which he is sent. (Such action is of special importance to liaison officers of attached or supporting units.)

Keep an appropriate record of his reports.

Report on those matters within the scope of his mission.

Advise the visited unit commander of the contents of reports to be sent to his own headquarters.

Make prompt report to his own headquarters if he is unable to accomplish his liaison mission.

Report his departure to the visited unit commander on the completion of of his mission."

The material taken from the Field Manual was originally designed to apply to liaison officers with combat units but can easily be applied to the situation in which an Ordnance Officer is assigned to liaison duty by his commanding officer.

The use of liaison agents spread throughout the army grew from a recognition of that close understanding which is necessary to successful operations. Ordnance units have found liaison agents highly valuable when the most competent available personnel is used for the purpose.

An Ordnance unit must keep in close touch with a number of other organizations to complete its mission. It must, primarily, be in close contact with the units which it serves. It must have good relations with its own supply points to assure a regular flow of parts and supplies. It must maintain liaison with higher and lower echelons of Ordnance and it should be fully cognizant of the facilities of other Ordnance units of the same echelon in that area. Its work is closely identified with that of other organizations and, to be effective, the Ordnance unit must be fully informed as to the plans and operations of the other organizations at all times.

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The Table of Organization and Equipment for an Ordnance Maintenance Battalion, Armored Division, provides for three first lieutenants to serve as liaison officers. Other T/O & E's do not specifically designate personnel for liaison purposes, making it necessary to re-arrange assignment of duties so that there is provision for this work.

In some cases the commanding officer of an Ordnance unit has found it advantageous to undertake the liaison work himself. One battalion commander in particular, whose unit has achieved remarkable success in combat operations, prides himself on the smooth running of his organization during his absence. He claims that he spends most of his time away from the unit, "greasing the slides" for smoother Ordnance maintenance and supply. By personally contacting unit commanders, he receives many inside tips as to when peak loads may be expected, what type of Ordnance service may be needed, and the success or failure of the service he is rendering. He fully admits his necessarily infrequent visits with other commanders is a poor substitute for full time liaison work, but his success with this limited amount of contact effort immediately suggests the added benefits that would develop if he had full time liaison agents working with the units serviced and supplied.

A general criticism of liaison arrangements has been that the assignment has been given to the least experienced officer instead of one who, by reputation and ability, can command the respect and cooperation of those with whom he comes in contact. Liaison is of sufficient importance to merit the assignment of an experienced officer whose qualification as an Ordnance expert will be accepted by the commanders of using units. He is not a messenger boy, running errands for his own commanding officer, but one who merits the confidence of his commander to the extent that he can undertake obligations and deliver the services promised.

An officer should consider assignment as a liaison agent as a distinct compliment to his personality, tact, and technical ability. And he can, by careful handling, make the assignment pleasant for all concerned. He is somewhat in the nature of an ambassador, representing his superiors and charged with fosterng good relations. He should be a walking, talking, encyclopedia of Ordnance knowledge who is able to make himself so valuable to the unit to which he is sent that the commanding officer will seek out his advice and assistance. In an organization such as the army, misunderstandings and difficulties will often arise but careful action by a competent liaison officer will settle them long before they reach the serious stage.

Ordnance liaison agents, operating with using units, have been compared with salesmen but it seems that more properly they should be considered as service representatives—whose mission is to make certain that the Ordnance materiel within an assigned territory is operating properly and receiving necessary service; that Ordnance parts and supplies are available where and when needed. He is selling service to the using units and his handling of relations with these units will make or break the reputation of the Ordnance organizations he represents.

Goodwill is an intangible asset of any going concern and should be an important item on the balance sheet of an Ordnance organization as it is in a civilian enterprise. The fostering of this good will is the job of the liaison officer in particular for it is he who contacts the customer and, by proper handling of relations, builds a strong bond of common understanding and appreciation.

Ordnance units have found effective a liaison team made up of a competent officer and a highly skilled technician whose knowledge embraces all fields of Ordnance maintenance and repair. Together they carry the proper authority and technical knowledge to be of great service to using units. They are able to make highly important decisions as to whether on-the-spot repairs are possible or if the materiel must be evacuated. They can carry out informal educational programs which will relieve the load on the maintenance unit. And often they can effect minor repairs themselves or be of great assistance to those charged with first and second echelon maintenance.

Sometimes the team may discover a unit attempting to make repairs far beyond the scope of their training and facilities. They may find the using units causing damage to materiel through neglect of preventive maintenance. Liaison agents have been of assistance in discouraging the hoarding of spare parts. And

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they can be of great help to their own units in connection with providing complete information about recovery and repair jobs that require evacuation or contact parties. As the team becomes better acquainted with the needs of the using unit, it will be able to devise many ways of making Ordnance facilities of the greatest possible service.

Many Ordnance units have found it advisable to detail enlisted men to supply points such as a base depot to expedite shipment of spare parts and supplies. These men have a great responsibility in the maintaining of good relations with the base depot and insuring the steady flow of needed supplies.

Ammunition companies have found liaison representatives of great use in assisting using units in the handling and storage of ammunition. One officer recently reported that the return of ammunition to the supply point posed a considerable problem but that careful work by a liaison agent reduced the returns to a minimum.

Liaison with higher and lower echelons is particularly of importance to maintenance units who must work closely with other organizations in Ordnance. Complete understanding between light, medium, heavy and base outfits will bring about a smooth flow of materiel to be repaired so that there will be a minimum of time lost.

Full knowledge of the facilities of all Ordance outfits in the area is essential in a maintenance unit which might suddenly be flooded by an influx of work or find itself confronted with a job which required tools or facilities lacking at the moment.

Liaison agents will also keep the commanding officer of the Ordnance unit completely up to date on the military situation, advising him of all changes which affect the unit and its work. In case of a sudden advance by the enemy, timely advice from a liaison officer might well mean the difference between successful evacuation or abandonment of the unit's materiel.

Liaison is a big job—too much to be handled solely by specially assigned officers and technicians. It is a responsibility of every member of the organization from the commanding officer down to the basics. Contact parties in particular have a splendid opportunity to "sell" their organization and its service to the using unit; to give timely and pointed instructions that may avert future maintenance problems; to learn the difficulties of the using unit and to give assistance with their solution.

It is a little too much to expect every Ordnanceman to be a super-salesman. But the Ordnance Department isn't looking for super-salesmen. Men and units who will give super-service is the goal of Ordnance and that goal can be achieved. It simply requires hard, intelligent work on the part of every officer and enlisted man to understand the other fellow's problems; the ability to present his own problems; and the desire to develop mutual cooperation and coordination.

## THE THEATER ORDNANCE OFFICER

**Mission.** The mission of the Ordnance Department in the theater of operations is the supply and maintenance of all materiel issued by the Ordnance Department, including generally all armament, ammunition, ordnance vehicles, and other Ordnance equipment and supplies, and the rendering safe and disposal of all dud and long-delay enemy bombs and ammunition. Functions of the theater Ordnance officer are those of "supervision and control of ordnance service in the theater of operations." The method whereby control is obtained depends primarily upon:

Strength and equipment of the forces in the theater of operations.

Character of the operations.

Distance from the zone of the interior.

Capacity, availability, and character of transportation facilities and their relation to the operations contemplated.

Availability of local resources.

**Responsibilities of Theater Ordnance Officer.** The theater ordnance Officer is the technical director of the Ordnance service. As such he is responsible to the theater commander for the following:

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Preparation of a plan for the organization of Ordnance service in the theater, and its expansion in conformity with the general plan and approved priorities.

Efficient operation of the Ordnance service as a whole.

Establishment and maintenance of simplified and uniform methods of administration, operation, and procedure for all Ordnance activities in the theater of operations.

Coordination of ordnance operations in subordinate commands.

Recommendations for new, improved, or special types of Ordnance supplies to meet the particular requirements of the theater of operations.

This staff officer exercises his control over Ordnance in the theater through those in the echelon immediately below him—the Communications Zone Ordnance Officer, the Air Forces Ordnance Officer and the Army Ordnance Officer. Following is a chart showing the relationship of the various key Ordnance staff officers in a theater.

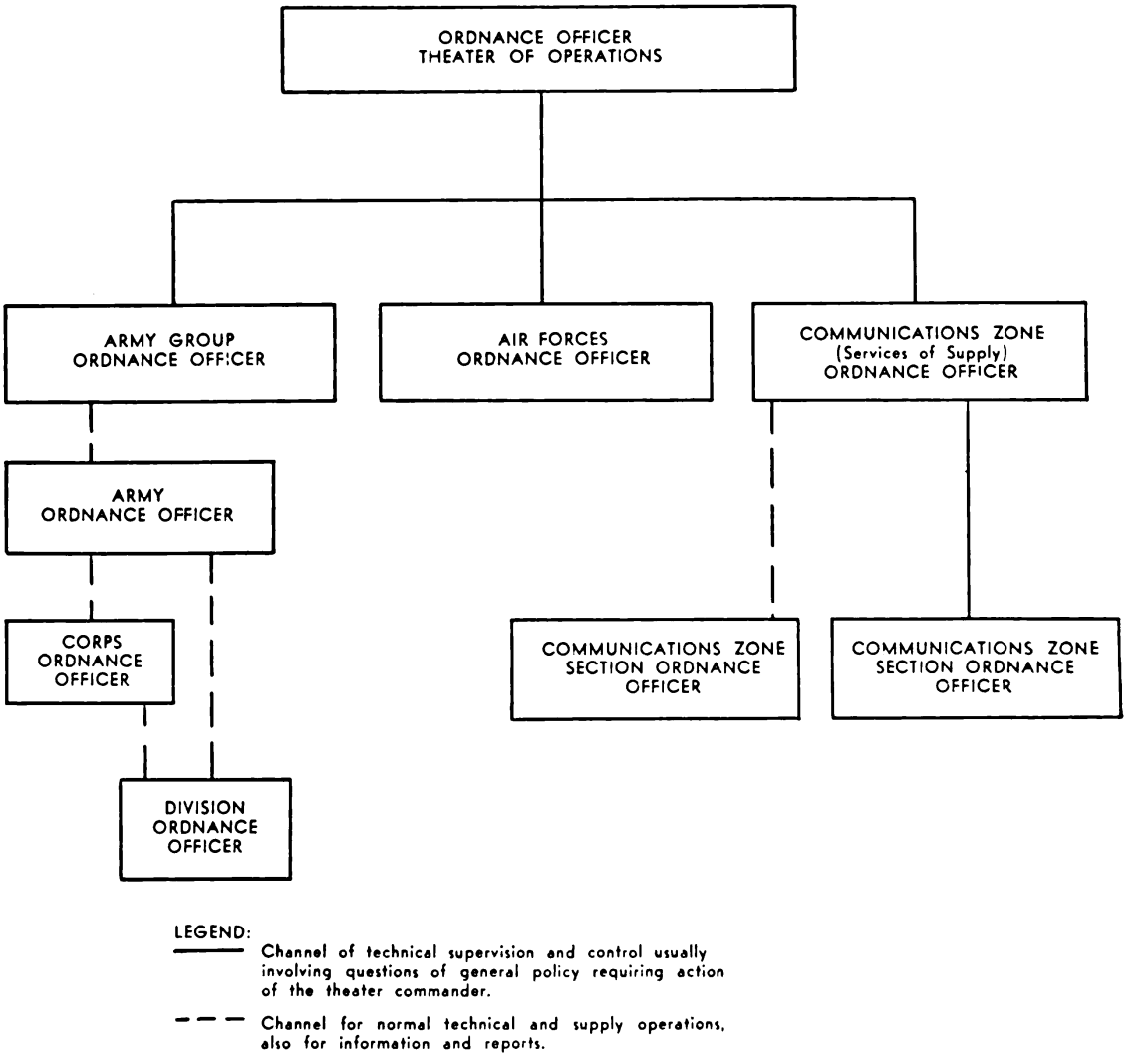



**Figure 4. Theater Ordnance Officer.**

From this it will be seen that the Theater Ordnance Officer is the link between the Ordnance operations in the theater and the high command of the theater, between those operations and the zone of interior with its procurement facilities; and he coordinates the supply of the communications zone with the requirements of the operating forces. As such he is directly responsible, at the top level, for the planning of Ordnance service—from the providing of estimates of troop needs to planning for the supply and maintenance flow to the combat operations in the theater from all sources without and within the theater.

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In discussing the theater ordnance officer it is obviously necessary to deal in generalities. He is on the tactical command special staff with the principal task of general supervision. His immediate assistants in this section will be so organized as to suit the requirements of the theater.

In lower echelons it will be more desirable to describe the duties in more specific detail. This will be done with illustrations of staff work in the pages following.

## THE COMMUNICATIONS ZONE ORDNANCE OFFICER

**Mission.** It is well understood that the communications zone is the base of supplies of men and materiel which bridges the gap between the initial sources of them in the zone of interior and the ultimate need for them in the combat zone. So it is with communications zone Ordnance—it bridges that same gap in connection with Ordnance activities. In fulfilling its mission, communications zone Ordnance must do these things:

a. It must provide the combat zone with Ordnance materiel in accordance with the plans of the commander of the field forces. b. It must provide the means for evacuating unserviceable ordnance materiel from the combat zone and undertaking the necessary salvage and repair thereof, in order to minimize shipments to the theater of operations. c. It must exploit to the maximum all existing facilities and sources of supply within the geographical limits of the communications zone. d. Further, provision must be made for the rendering safe and disposal of dud and long-delay enemy missiles menacing military installations within the zone of communications. Resonsibility for this mission rests on the Communication Zone Ordnance Officer.

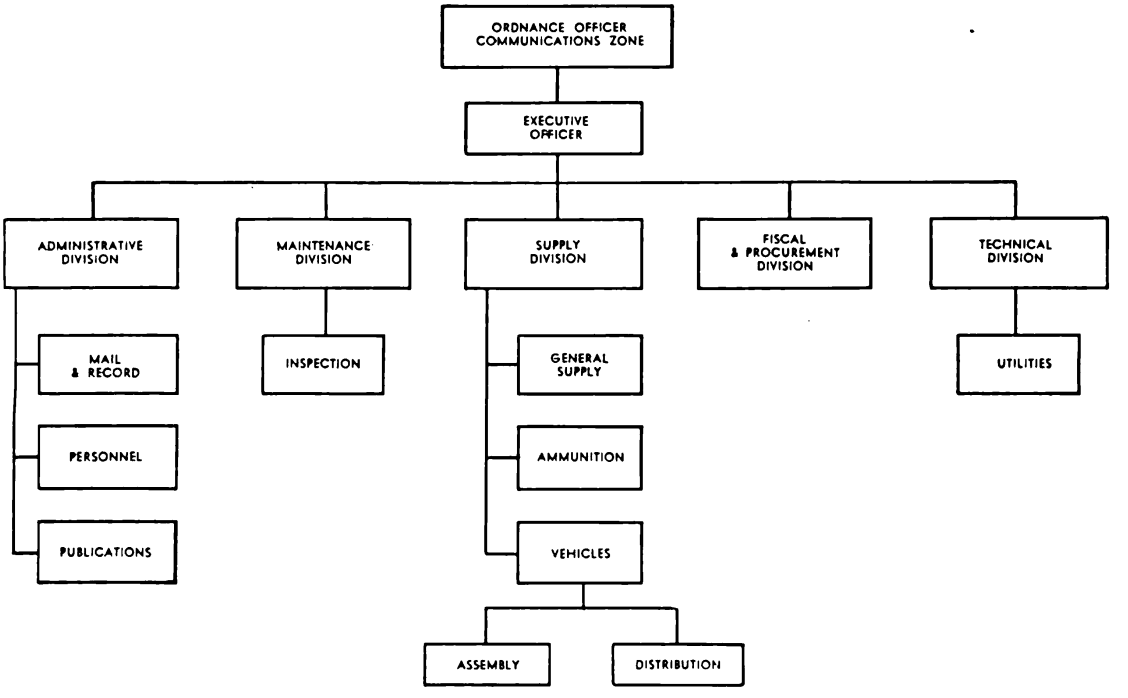



**Figure 5. Communications Zone Ordnance Officer.**

**Communications Zone Organization.** Here, as has been previously stated, are the administrative establishments which serve the theater as a whole. The supplies which arrive from the zone of interior or which are obtained locally are ordinarily classified in the rear depots. In the depots closer to the combat zone are the balanced stocks necessary to meet promptly the immediate needs of the troops. Throughout are the installations necessary for the Ordnance service in the particular area required by the troops assigned to the zone in one of the sections. If and when the whole communications zone is completely organized into sections—base, intermediate and advance, or only the first and last—there will be normally an Ordnance officer, with his staff section, on the staff of the com-

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mander of that part of the whole communications zone area. They will advise their commanders and be otherwise limited normally to the provision of Ordnance service to troops within their sections of the zone.

**Responsibilities of the Ordnance Officer, Communications Zone:** This officer follows in the footsteps and the plans of the next higher echelon, the theater headquarters and its ordnance staff section. On its level, the same duties must be performed to the extent that they occur. This officer has available all the personnel and facilities assigned to the zone to assist him. In performing these functions, he will do the following:

Maintain stocks of ordnance supplies at the levels prescribed by the theater commander.

Take the necessary measures to insure the equalization of stocks between depots.

Control the repair operations of all Ordnance shops of the communications zone, and the reception, classification, and assignment for repair of all Ordnance materiel evacuated from the combat zone by the Ordnance service of the armies, or released to the Ordnance service of the communications zone by the central salvage agency of that zone (if such agency is established).

Supervise and control, subject to the direction of the Theater Ordnance Officer, all Ordnance training activities conducted in the communications zone, including the operations of the various Ordnance training facilities associated therewith.

Require the maintenance of Ordnance supply records in such form that prompt reports may be made, when required, concerning the kind, quantity, location, and condition of Ordnance supplies available for distribution by the communications zone; and as a corollary, report to the commander of the communications zone all items of Ordnance supply with reference to which special attention is required.

Procure Ordnance personnel adequate to the efficient functioning of Ordnance depots, Ordnance sections of general depots, and Ordnance shops of the communications zone.

Prepare instructions for the quartermaster salvage service concerning the disposition of Ordnance materiel salvaged by that service.

Provide for the inspection of Ordnance materiel in the hands of troops in the communications zone and for the re-equipment of these troops, as directed by the commander of theater of operations.

Establish and operate a section for the testing and analysis of captured enemy ordnance.

Procure and purchase such items of Ordnance supply as may be available locally within the theater.

Figure 5 will demonstrate the typical breakdown of the Ordnance Office, Communications Zone, and thus show the nature and extent of the required job.

An outline for the sample SOP for Ordnance service in the communications zone is furnished at the close of this chapter to illustrate the relation of staff planning to successful Ordnance operations. Annex 2.

**Regulating Station.** The primary mission of the regulating station is to maintain an even and uninterrupted flow of supplies from communications zone to combat zone. This means of course that there will be Ordnance problems requiring attention from the Ordnance representative on the staff of the regulating officer. Naturally, if there is no regulating station, these same functions will be carried out by liaison between the combat and communications zones. This is definitely important from the standpoint of establishing shipping priorities and eliminating the possibility of "bottlenecks". Because of the nature of these functions responsibilities for operation of regulating stations are normally assigned to the transportation corps staff in a theater.

The Theater Ordnance Officer will ordinarily require a direct representative on the staff of the regulating officer, or, on the staff of the designated traffic control agency. He is in charge of the Ordnance section of that agency. His specific duties include the following:

He is responsible for the timely presentation to the transportation section of Ordnance requirement for rail transportation.

He will make recommendations to the regulating officer or the theater priorities section as to priority in shipment of Ordnance supplies.

He will provide Ordnance personnel to accompany each ammunition train into the army service area.

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## BASE SECTION ORDNANCE OFFICER

**Mission.** To provide the connecting link in actual receipt and shipment of ordnance materiel between the Zone of Interior and the Communications Zone. To provide a complete ordnance service support to all forces in the combat and communications zones.

To carry out policies of the communications zone ordnance officer as directed.

It may be said for ordnance service in the field, those two ordnance installations which are charged with broadest and most far reaching jurisdiction; who, with zone of interior shipping points jointly comprise a direct line from producer to combat units; and finally, who are the ordnance work-horses that together execute the lion's share of the ordnance service burden, are indeed the base section and army ordnance installations. Rather than a reflection on the duties of other staffs covered in this chapter, readers will consider this a highly decentralized and therefore a most desirable situation. This is a planned War Department policy wherein both the ordnance staffs and their allied services are integrated from front to rear, from division ordnance to army ordnance to base ordnance and thence to the zone of the interior.

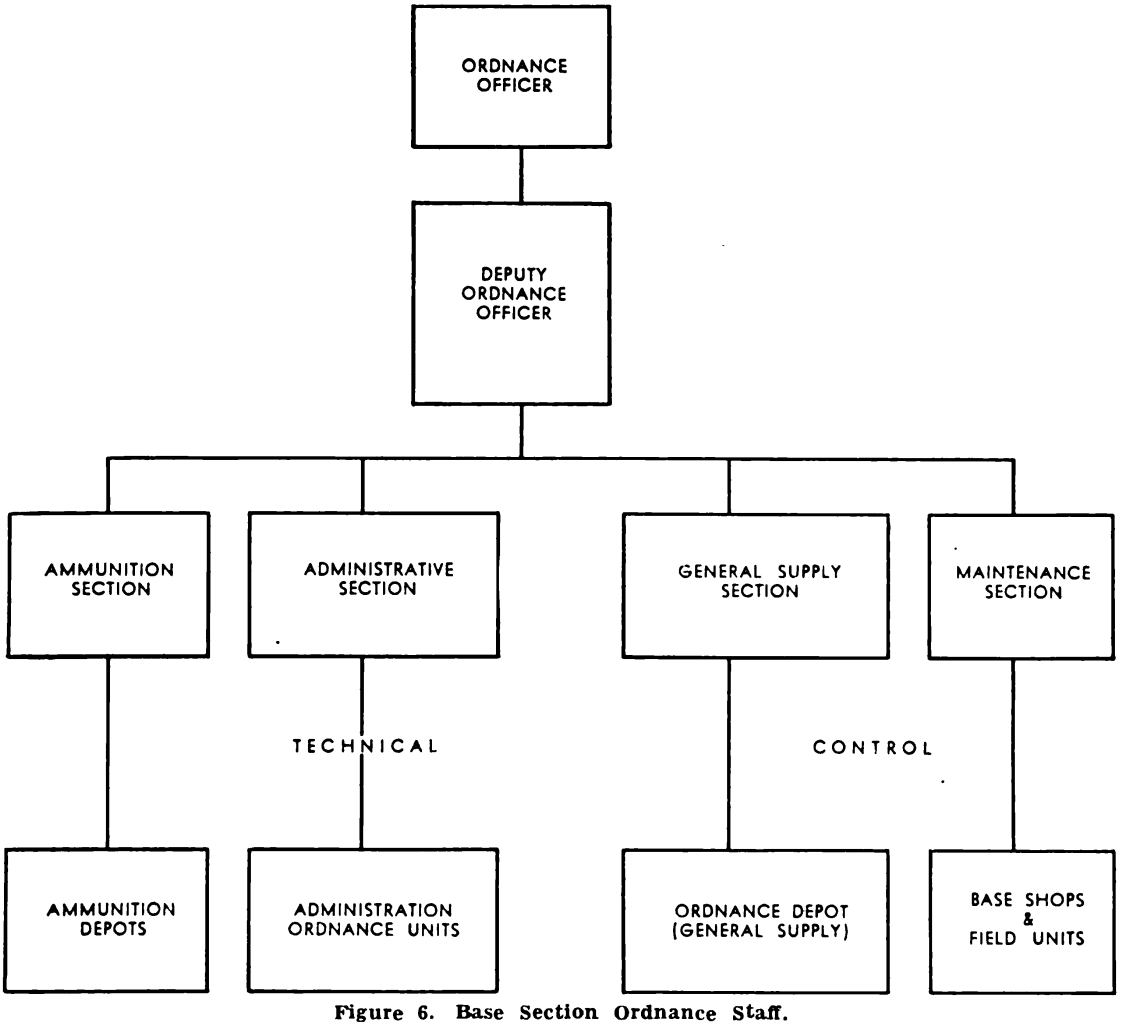



**Figure 6. Base Section Ordnance Staff.**

**Duties of the Base Ordnance Officer.** In addition to the general duties for ordnance staff officers, discussed in previous sections of this chapter, the base section ordnance officer—

Furnishes necessary planning data to the communications zone ordnance officer to enable the adequate, judicious, and expeditious reporting and ordering of required ammunition, major items, unit assemblies, tools, equipment and spare parts.

Maintains and operates ordnance service installations for the base section, to

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specifically include the local 3rd and 4th echelon maintenance, base shops (5th echelon); ammunition supply, and renovation; assembly and distribution of unit-packed ordnance materiel; maintains and supervises operation of the ordnance base depot (if separately set-up) and the ordnance section of the general depot; operates the general purpose and armored vehicle as well as the artillery pools; operates salvage and reclamation dumps (if separate from the base shop installations); operates a captured enemy materiel collection and distribution point and such other agencies deemed necessary in the execution of the mission.

Command Ordnance units of the base section.

Insure the satisfactory status of training in all units of this command.

**Organization.** The typical organization of a base ordnance section is shown in Figure 6. Separate commanders are designated, upon orders, for the various major agencies listed above. Each commander executes the largest practicable portion of the business of his command through technical channels, which in base ordnance will normally be the Maintenance Officer, Supply Officer, Ammunition Officer or other pertinent staff officer. Normally, the base ordnance section will publish a standing operating procedure establishing policies of the command for technical functions within lower echelons, Administrative matters will be rendered uniform for all base units in the Administration Order (with Annexes and Appendices as needed) of the base commander.

The command channel for ordnance units in base operations may be through battalion headquarters, to ordnance group headquarters and thence to base section headquarters.

The technical channel is direct from operations agency to staff officer in the base section ordnance office as indicated above.

**Operation of the Base Section Ordnance Staff.** Essentially three distinct functions constitute the major operations of the staff:

Provide a collaborated and coordinated execution of policies set up by the communications zone ordnance officer. Supply and maintenance problems will necessitate voluminous and continuous correspondence by letter, wire and courier between the two offices. Suitable liaison to the higher echelon will be regularly provided and frequent visits of staff officers will be made to clarify, amplify, and streamline all current problems and plans. Here, the technical channel is from ordnance officer to ordnance officer rather than from one staff section to another. This is emphasized here to offset contrary tendencies which may arise in the field in some cases.

(1) Maintenance will receive extensive data from Communications Zone Ordnance in technical visits, directives on materiel modifications, lubrication and general maintenance and likewise will transmit upward current matters which are being experienced in maintenance work of the base.

(2) Ammunition will furnish stock control reports, rates of expenditure, replenishment and planning requirements and inter-change technical information with the Communications Zone Ordnance office.

(3) General Supply will coordinate policies, transmit and receive operational reports for the staff and various supply installations of the base section, with the Communications Zone Ordnance Office.

In this portion of operations staff officers will be imbued with an appreciation for the Communications Zone Ordnance Officer's position. It is particularly true, here, that the base section is the eyes and ears of the Communications Zone Ordnance Office. The base section is the second and only link in the overhead (SOS) channel and therefore of keystone importance to success in the ordnance service supporting tactical units. Similarly this close inter-office cooperation will enable the Communications Zone Ordnance Officer to present to the zone of interior a more accurate and up-to-date big picture of all overhead activities in the theater.

Furnish a complete ordnance service to all tactical units supported. Each element in the base section SOP will be directed toward this basic responsibility. Every channel for improving maintenance, evacuation, ammunition supply, general supply, and allied functions will be fully exploited by the staff in collaboration with the members of other special staffs and with the general staff in the base section. Each section will devote a large share of its time in planning and be sufficiently cognizant of the tactical situation up ahead so as to keep plans for

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new installations in the intermediate and forward zones up-to-date and ready for submission to the ordnance officer when called for.

A deputy Ordnance officer, when present, will handle a large share of the routine execution of policy decisions; will be the king pin in keeping the various staff activities coordinated; will clear many other matters of a binding nature which might otherwise be brought before the ordnance officer; will carry out a large share of the leg-work involved in contacts with supported tactical units and the local base troops; will habitually keep the ordnance officer advised on important matters and will invariably accompany the ordnance officer during staff meetings at the base section and staff inspections of ordnance installations. He will know the policies precisely and thoroughly and will figure largely in the supervision of ordnance planning in various sections of the staff. During conferences of ordnance staff members he will make the necessary special arrangements to insure section chiefs needed are present, and according to custom in the staff may do the steering work during conferences.

The closest harmony and coordination will exist between the base section and supported tactical units. Every effort is made to clear ordnance matters arising between the two echelons, through technical channels. In some operations the base ordnance officer may direct members of his staff to communicate orally, and by personal visit, with the forward unit ordnance staff on all matters of a routine, non-policy establishing nature. Maintenance and supply services efficiencies are frequently boosted considerably by this decentralization of control if carefully and judiciously effected. Further, the necessity for technical matters being delayed, and also overburdening, command channels is obviated.

The administration of command and technical control of all ordnance units in the base section, in effect, are the tools wherewith the base ordnance officer is enabled to accomplish the two aforegoing big jobs. It is judicious to set the command organization apart from the technical. This will be provided in a new Table of Organization for the Base Ordnance Group currently being formulated. Several arrangements for command control have been used; however, one plan of appreciable merit is to designate the second in command as Commanding Officer of the Ordnance Base Group. This latter headquarters functions very much like the regimental set-up. The troop list will normally include separately organized battalions for (a) 3rd Echelon Maintenance, (b) 4th Echelon Maintenance, (c) Base Shop, (d) Vehicle Assembly and Distribution Units, (e) Ordnance General Supply Units, and (f) Ammunition Supply Units. Other ordnance units of the base not included are assigned to the various designated battalions by virtue of their location, or mission. It might here be stated the Base Ordnance officer will establish command channels in his SOP in such fashion that the various battalion headquarters may function primarily as service agencies only. That is with a principal job of handling all personnel administration, non-technical reports and acting as reception and distribution centers for rations, mail, etc. In other respects the individual ordnance units are under separate operation except for technical matters for which they are completely controlled by the section commander concerned. For example a depot company under such a set-up would forward and receive administrative directives through battalion (including promotion and court-martial), administer its own supply, and would be under the ordnance section officer of the general depot for assignment and operation in its mission.

One of the problems requiring early attention is adequate Ordnance installations. Don't underestimate your initial requirements; you may never get any more. Select your requirements from a practical operating standpoint. The entire future operation and the ability of Ordnance to carry out its mission may depend upon the adequacy of the installations initially obtained. G-4 will probably be involved in the allocation of space. So make your reconnaissance, selection, and demands at the earliest possible moment. Then be prepared with arguments to defend your requirements at all times. The Quartermaster is a competitor for large space requirements. The best way is to get the ground first. You will probably require adequate installations for dumps, depots, and bivouacs. Road, rail and water transportation facilities will also probably be involved. After securing your space, you will undoubtedly require certain work to be done by the Engineer. Here again, you will have to fight for your share of a limited amount of con-


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struction. You will probably require roads and perhaps a rail spur for your ammunition depot. Possibly roofs, bins, and a spur will be required for the Ordnance General Supply Depot or the Base Shop.

Another immediate problem confronting the Ordnance Officer is the establishment of Ordnance Service. Depending on the tactical situation, you will probably have maintenance, depot, and ammunition troops, that have to be housed, bivouacked, grouped and located at points best suited to carry out their mission. It is axiomatic that Ordnance troops be located on the axis of supply. Push your leading support elements as far forward as you possibly can, especially if you are in direct support of combat troops. The immediate establishment of personal contact with the Ordnance elements forward, whether they be Division, Corps, or Army, is imperative.

## CHECK LIST FOR ORDNANCE OFFICER

1. Selection of Deputy Ordnance Officer.
2. Selection of Administrative Officer.
3. Selection of Section Chiefs.
4. Requisition or selection of officers and enlisted personnel.
5. Requisition office supplies and equipment.
6. Prepare list of Ordnance troops that will be required.
7. Send Deputy Ordnance Officer to location of new Base at earliest possible moment.
8. Send Section Chiefs and enlisted detachment forward at earliest possible moment.
9. Ordnance Officer to move forward with Commanding General and Staff.
10. Leave Administrative Officer in rear to clean up if necessary.
11. Publish Ordnance Supply Plan (Class II and V) in coordination with G-4.
12. Publish Ordnance Maintenance Directive, in coordination with Corps or Army Ordnance Officer.
13. Follow Situation Map daily.
14. Require copy of all incoming and outgoing communications to pass over your desk, request three copies from AG—one to Ordnance Officer, one to interested section, one for file. (Ordnance Officer's copy through Deputy Ordnance Officer.)
15. Require daily report from Vehicle Park on dues in, dues out, on hand, and their status.
16. Require daily Ammunition Report from Ammunition Section.
17. Require weekly Maintenance Report from Maintenance Section.
18. Visit all Ordnance installations periodically.
19. Either the Ordnance Officer or the Deputy Ordnance Officer to be at Base Headquarters at all times.
20. Suggest in principle that the Deputy Ordnance Officer be charged with direction of all field operations.
21. Start a Monthly Journal. Each Section to write its part.

Note: For T/O for Office of Ordnance Officer, See Ordnance Troop Units.

## THE ARMY ORDNANCE STAFF

**Mission.** The army ordnance service performs the following functions:

Provision and distribution, within army, of all ordnance materiel and supplies.

Performance of third and fourth echelon maintenance of all ordnance materiel within army.

Evacuation of unserviceable ordnance materiel to ordnance shops for repair.

Inspection of ordnance materiel and supervision of first and second echelons of maintenance.

Dissemination of technical information to all commanders and using troops.

Removal and disposal of dud or long-delay enemy bombs, shells, or other ammunition.

**Army Ordnance Officer.** As a member of the special staff of the army commander, the army ordnance officer has all the duties of an ordnance staff officer set forth in "The Ordnance Staff Officer," on page 716. He is responsible for preparing a complete plan for ordnance maintenance and supply operations in army and for the execution of the approval ordnance plan. He is the commander of all

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ordnance troops in the army not assigned to or attached to subordinate tactical units, and exercises direct control over all operations of the army ordnance service. The army ordnance officer is responsible to his commander for the establishment and operation of maintenance shops, ammunition supply installations, and general supply installations, the operation of evacuation facilities, and the timely provision for the ordnance requirements of the army. He maintains such records as will enable him to keep his commander and higher echelons of ordnance service informed of the condition and sufficiency of ordnance materiel in the hands of troops, the status and condition of all ammunition under army control, the status of ordnance general supply, and the ordnance maintenance activities within the army. He also maintains such additional records and makes such reports as may be required by the army commander or higher authority.

**Planning.** The purpose of ordnance planning is to coordinate all phases of the army ordnance service with the tactical situation. It must be a continuous process and must provide not only for future operations and anticipated conditions, but also for all possible contingencies. This requires that the army ordnance officer keep himself informed of the tactical situation and future tactical plans, and that he evaluate their effect upon the ordnance problem. The ordnance plan must conform to the tactical plans of army, the plans of superior ordnance echelons, the established policies of the army commander, and the divisions of the army G-4 under those policies, and it must be predicated upon an evaluation and application of all ordnance statistical data available.

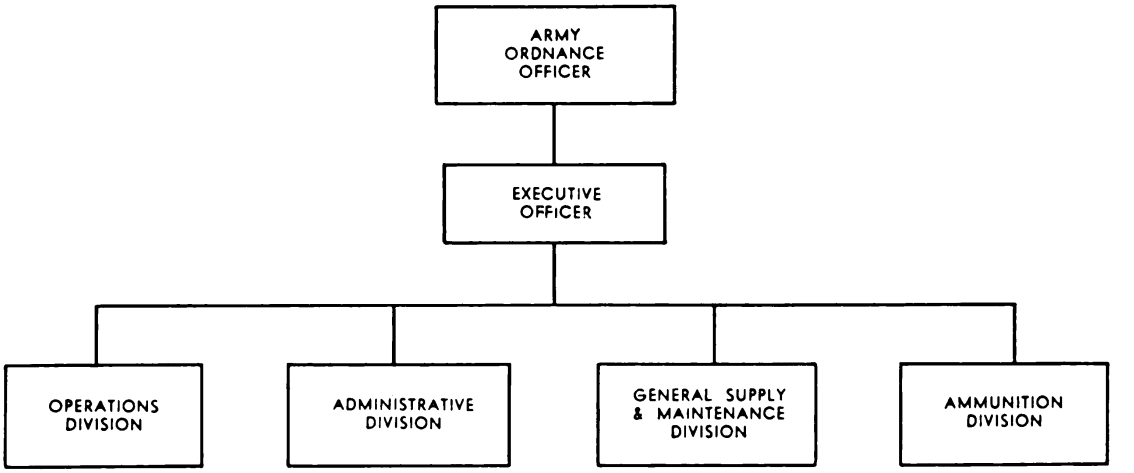



**Figure 7. Organization of Army Ordnance Office.**

Army ordnance plans normally include the following:

Estimate of the ammunition, general supply, maintenance, and other ordnance requirements of the army for the operation contemplated.

Number and locations of ammunition depots, ASPs, and other ammunition supply installations, and, for each installation, its initial stock, its time of opening, the stock level to be maintained, methods of issue and replenishment, and the units to be supplied.

Number and location of ordnance general supply installations, both field depots and supply sections of maintenance companies; their prescribed supply levels; the replacement factors and methods to be used in computing stock levels from supply levels; general instructions concerning reports; methods of issue and replenishment; the points of resupply for each; and the units to be supplied by each.

Number and locations of ordnance maintenance shops and the units to be supported by each.

Number and locations of railheads, truckheads, or navigation heads.

Methods and priorities of evacuation of unserviceable materiel.

Policies regarding the allocation of ammunition, controlled and critical items of general supply, and maintenance priorities.

Desired priorities of shipments.

Special instructions concerning inspections.

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Transportation, construction, and labor requirements in addition to those which can be met by army ordnance personnel.

A sample Army ordnance plan is given in Annex 4 at the end of this chapter. (See preceding section, Ordnance Planning, for check list of Ordnance Plans.)

**Organization and Facilities.** Army Ordnance Service consists of an ordnance section of army headquarters and the ordnance troop units necessary to fulfill the army ordnance mission.

Normally the army ordnance section will be organized as shown by Figure 7, page 739.

Following is an extract from Ordnance Circular No. 2 Headquarters —th U. S. Army which states the duties of the officers assigned to the Ordnance section. Section II—Ordnance Officer:

4. Certain duties are required for the functioning of the Ordnance Office as a whole, or are of such specialized nature as to require that they be held under the personal direction of the Ordnance Officer. These duties are grouped into the Ordnance Officer's section, which functions normally under the control of the Executive.

5. The Executive Officer will:

a. Coordinate activities affecting more than one Division of the Ordnance Office.

b. On the basis of the Ordnance Officer's plan, prepare matter for inclusion in Army Administrative Orders.

c. Interpret the Ordnance Officer's policies in his absence.

d. Approve plans submitted by Division Chief in conformity with approved policies of the ordnance officer.

e. Approve and sign publications of the Ordnance office intended for general distribution.

f. Direct the activities of the Administrative Section, Liaison Officers and the Ordnance Intelligence Officer.

g. Be responsible for the preparation of the Ordnance office for field duty and supervise movement of the CP.

h. Control and direct the allocation of EM within the section and their hours of duty, make recommendations concerning promotion, discipline or transfer of EM within the section.

i. Be responsible for maintenance and operation of the physical facilities of the Ordnance Office, approve details of duty rosters, orderlies, CQ, etc.

j. Function as Assistant Security Control Officer in connection with all classified papers and matters within the section.

k. Maintain the Ordnance Officer's Policy Book.

6. The Ordnance Intelligence Officer is the agency of the Ordnance Officer for the accomplishment of the following mission:

"collection and evaluation of information concerning enemy Ordnance materiel in order to effect the maximum exploitation of enemy resources and materiel."

The Ordnance Intelligence Officer will:

a. Inspect captured materiel to discover new or unknown items, and make reports thereon to G-2 and through technical channels.

b. Prepare information for the command with respect to the characteristics and methods of operation of enemy materiel.

c. Advise the Ordnance Officer with respect to the safety characteristics and methods of operation of enemy materiel.

d. Supervise, through technical channels, the operation of Ordnance Intelligence representatives in Corps, Division, and Ordnance Battalions.

e. Maintain complete technical library of books on enemy weapons, vehicles and munitions.

f. Carry out necessary liaison with the Theater Ordnance Intelligence Officer.

g. Supervise the activities of Ordnance Intelligence Teams operating within the Army area.

h. Assure the prompt recovery and evacuation, through proper channels, of all enemy materiel desired for research purposes.

i. Prepare necessary data required by G-3 in connection with the training of troops in use of enemy materiel.

j. Prepare necessary summaries for G-2 with respect to essential elements of

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information on enemy materiel and munitions, and brief interrogation teams when requested.

k. With authority from G-2, interrogate selected captured technical personnel.

7. The Liaison Officer will:

a. Be thoroughly familiar with the policies of the Commanding General and the Ordnance Officer on all matters pertaining to Ordnance Service.

b. Be thoroughly familiar with the organization and functioning of all parts of the Army Ordnance Office and all elements of Army Ordnance Service.

c. By personal contact with Corps and Division Ordnance Officers and S-4's of separate Army units, discover problems, eliminate misunderstandings, assist coordination and eliminate difficulties and points of existing or potential friction.

d. Follow specially assigned missions through all echelons of Ordnance Service to assure completion of a specific task or objective.

e. In general, act as the personal representative of the Ordnance officer in his relations with officers in lower echelons of the Technical command.

f. Make periodic report to the Ordnance Officer concerning the effectiveness and adequacy of Ordnance Service in all echelons within the Army.

Section III—Maintenance and Supply Division:

8. a. The Maintenance and Supply Division is responsible to the Ordnance Officer for the execution of the following duties as outlined in FM 9-5:

(1) Advisor to the Commander and Staff on Ordnance technical matters.

(2) Technical inspection of Ordnance equipment.

(3) Collection of information concerning Ordnance materiel.

(4) Timely provision for Ordnance Supply requirements for Army.

(5) Technical operation of the necessary depots to carry out the Ordnance Supply Plan.

(6) Technical operation of field shops.

(7) Establishment of basic loads and levels of stockage for the elements of Army Ordnance Service, and coordination of requirements set up for the lower echelons.

(8) To cause to be made such inspection of Ordnance materiel as may be necessary and determine that proper precautions are being observed in Ordnance storage facilities and that necessary technical information is available and is being strictly complied with.

(9) Maintain such technical records as will enable the Ordnance Officer to keep the commanding general informed as to the condition and sufficiency of Ordnance materiel within the Army.

(10) Make such technical reports as may be required, by the Commanding General and by the Chief Ordnance Officer.

(11) Take the necessary steps to insure that technical instructions for maintenance activities and repair of Ordnance materiel prescribed by the Theater Commander are properly complied with.

b. The duties of the maintenance and supply division are technical in nature. The maintenance and supply division calls upon the operations division for the necessary physical facilities to accomplish the mission.

9. The Maintenance and Supply Officer will:

a. Supervise, coordinate, and direct the activities of the Ordnance Supply Section, Automotive Section and Maintenance Section.

b. Designate controlled, frozen and rationed items.

c. Establish rationing methods.

d. Supervise allocation of controlled items.

e. Review Status Reports.

f. Designate priority for supply and maintenance.

g. Set stock levels of controlled items.

h. Set stock levels of parts in general.

i. Personally handle requirements for special equipment.

j. Pass on all modifications and set priorities for accomplishment.

k. Designate substitute items in order of priority.

l. Personally check coordination of new items with parts and tools, therefore.

m. Personally be responsible for inspection schedules and procedures.

n. Review critical spare parts.

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o. Personally review maintenance reports and major item stock reports of Ordnance units.

p. Establish rules governing distribution and evacuation of unserviceable parts and major items.

10. The Supply Officer and Assistant Supply Officers will:

a. Allocate controlled items as directed.

b. Supervise collection, editing and recording of Status Reports and Loss Reports.

c. Supervise collection and recording of Reports of Captured Materiel.

d. Prepare consolidated loss reports of captured materiel for G-4.

f. Estimate requirements, and direct preparation of requests for future needs of controlled items.

g. Collate and interpret parts expenditure reports.

h. Review addendum lists of spare parts and recommend modification for guidance of Depot Companies and Maintenance units.

i. Maintain accurate weapons list for all forces and recommend distribution of load as a guide to Depots and Maintenance Companies in establishing basic weapons.

j. Direct transfers of stocks between Ordnance units when necessary.

k. Prepare advices to SOS with reference to anticipated extraordinary demands.

l. Review and action requisitions requiring the approval of Ordnance Officer.

m. Check depot reports and inspect depot control system.

n. Recommend policies governing procurement and issue of supplies.

o. Act as Ordnance Purchasing and Contracting Officer.

p. Maintain records of T/E and special authorizations for all units.

q. Supervise preparation of consolidated expenditure reports.

r. Keep Maintenance and Supply Officer, Maintenance Officer, Automotive Officer and Executive Officer advised of critical items of supply.

11. The Maintenance Officer and Assistant Maintenance Officer will:

a. Make recommendations in connection with:

(1) Standards of serviceability.

(2) Maintenance Methods.

(3) Standards for technical training.

(4) Required modifications.

(5) Priorities for execution of Modification Work Orders.

(6) Allotments of tools and spare parts to 3d and 4th echelon.

(7) Special authorization of tools and shop equipment to 3d and 4th echelon.

(8) Quantity and extent of required maintenance support.

b. Establish maintenance methods and technique.

c. Advise shop officers and maintenance officers of lower echelons with respect to necessary corrective measures.

d. Arrange schedules for and supervise inspection of Ordnance materiel (Army Inspection of Ordnance).

e. Establish standards for repair or evacuation.

f. Prepare technical information for publication to Command.

g. Establish standards for and supervise operation of collecting points.

h. Direct transfer of special tools between Ordnance units.

i. Maintain liaison with supporting SOS shops.

j. Coordinates all "cannibalizing" to insure maintenance in service of largest quantity of major items.

k. Maintain necessary records and prepare necessary recommendations to Supply Officer in connection with anticipated requirements for important major assemblies, especially gun tubes, combat vehicles tracks, tank engines.

12. The Automotive Officer (concerned with wheeled vehicles, half tracks and tractors) will:

a. Make recommendations in connection with:

(1) Allocation of General Purpose Vehicles.

(2) Standards of serviceability of General Purpose Vehicles.

(3) Requests for special allotments of General Purpose Vehicles.

(4) Standards and methods for maintenance in using organizations.

(5) Suitability of designated vehicles for intended tasks.

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(6) Load limits and controls.

(7) Driver operating methods from a technical standpoint.

(8) Priority for allotment of tools and parts authorized for using organizations.

(10) Substitute vehicles where required.

b. Arrange schedules for, control and supervise

(1) Spot check of vehicles and 2d echelon shops.

(2) Inspection of vehicles in using organizations.

(3) Observe operation of, consult with, and advise Automotive Officers and Motor Officers of lower echelons.

(4)Maintain close liaison with Maintenance Officers with respect to parts and tool supply for 1st and 2d echelons.

(5) Maintain necessary records and prepare necessary recommendations to Supply Officer in connection with anticipated requirements for important assemblies, especially engines and tires.

Section IV—Operations Divisions:

13. a. The Operations Division is the agency of the Ordnance Officer for the execution of the following general duties and responsibilities prescribed by FM 9-5:

(1) Command of Ordnance troops not assigned or attached to subordinate units (As directed by the Commanding General, —th US Army).

(2) Establishment of necessary field shops to execute the Ordnance Maintenance Plan.

(3) Establishment of necessary depots to carry out the Ordnance Maintenance Plan.

(4) Establishment of necessary Class V Depots to carry out the Ammunition Supply Plan.

b. The Operations Division, operating normally through the chain of command, must provide the necessary resources in men and facilities as required by the Maintenance and Supply and Ammunition Divisions in the execution of their responsibilities.

c. Request on Operations Division for facilities other than for Ammunition may specify task, approximate location or area, time required and strength in personnel, vehicles, and mechanical facilities as required for the mission. Operations normally designate the unit to accomplish the mission. Designation of individuals will be left to the responsible subordinate commander.

d. The Ammunition Division may place requirements on Ammunition Battalions, specifying the same data as above. Operations Division and Group Commanders will be kept informed of task assignments given to Ammunition units.

14. The Chief of Operations will:

a. Supervise, coordinate and direct the activities of the S-3, S-4, Communications Officer and Bomb Disposal Officer.

b. Make recommendations in connection with:

(1) Physical location of Army Ordnance Units.

(2) Assignment and/or attachment of Battalions and Companies.

(3) Allocation of missions.

(4) Transfers of individuals between units of Army Ordnance Service.

(5) Evacuation policies (time limits for work, location of collecting points and methods of exchange with SOS).

(6) Administrative policies in Ordnance units (channels for reports, promotions, etc.)

(7) Quantity and types of Ordnance troops for specific task force missions.

(8) Specific Ordnance units for specific missions.

c. Takes necessary action in connection with:

(1) Coordination with G-3 and G-4 of Army in connection with proposed movement of Ordnance troops.

(2) Movement of Ordnance units after approval and coordination.

(3) Supervision of training within Ordnance units (technical and military).

(4) Authentication of Operations Orders.

(5) Liaison in securing quarters and facilities for Ordnance units.

(6) Training and indoctrination of Group and Battalion Commanders.

(7) Such other activities allocated to the Executive Officer and S-1 of a

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troop command by War Department manuals as are pertinent and not otherwise specifically assigned.

d. Coordinates and supervises:

(1) Technical and military training of all Army Ordnance units.

(2) Collection and evacuation of unserviceable Ordnance materiel.

(3) Necessary transfers in parts and tools caused by changes in missions or movement of supported troops, including tranfer of Unit Service Records.

(4) Field tests and inspections of Ordnance units.

(5) Reorganization of Ordnance units when directed, including the organization of provisional units.

(6) Ordnance technical schools.

15. The S-3 will:

a. Prepare and submit training memoranda.

b. Conduct spot checks and field tests of Ordnance Group, Headquarters and supervise testing of Battalion Headquarters and Companies.

c. Audit inventories of specialists, make recommendations for corrections and deficiencies.

d. Prepare Operation Orders.

e. Maintain the Operations Map.

f. Supervise and coordinate collection and distribution within Ordnance units of thorough information on the location and situation of all tactical units.

g. Coordinate all requirements for civilian labor.

h. Prepare and coordinate training schedules and programs for Ordnance technical schools and recommend allotment of quotas.

i. Select training sites and coordinate use of training areas and ranges.

j. Prepare plans and directives for, and supervise activities concerning:

(1) Security measures in Ordnance Installations.

(2) Defense of convoys and supply movements.

k. Recommend priorities for assignment of equipment to Ordnance units.

l. Such other activities allotted to the S-2 and S-3 section of War Department, as are pertinent and not otherwise specially assigned.

16. The Ordnance Communications Officer will:

a. Establish, maintain, and exercise supervision of all radio nets within —th US Army Ordnance units.

b. Act as liaison between Ordnance and Signal Section, —th US Army.

c. Arrange for procurement of all equipment necessary for operation of Ordnance Radio Network.

d. Prepare and distribute to all personnel concerned extracts of the S.O.I. containing calls, codes, ciphers, and other information pertinent to radio network.

e. Arrange for training, initial and continuous, of all radio personnel.

f. Coordinate all forms of communication used by Ordnance units, to assure the adequacy of signal communications within Ordnance Service.

g. Supervise training of telephone operators and wire crews within Ordnance units.

17. The Bomb Disposal Officer will:

a. Coordinate the operation of Bomb Disposal Companies and Squads.

b. Recommend attachment of BD units as necessary.

c. Establish priorities for removal of UXB's and provide reinforcement to available units when necessary.

d. Coordinate and direct training of BD units within Army.

e. Conduct required Bomb Reconnaissance Schools.

f. Prepare plans and recommend procedures in connection with all BD activities.

g. Furnish technical advice with respect to UXB's, "duds" and other potentially dangerous explosives.

18. The S-4 will:

a. Recommend the location of collecting points and secure necessary approval.

b. Prepare plans for and supervise evacuation of disabled materiel in all echelons.

c. Conduct necessary liaison with SOS reference evacuation and exchange.

d. Assure maximum utilization of back-haul transportation and replacement vehicles for the movement of supplies and the evacuation of materiel.

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e. Coordinate the use of Collecting and Evacuation Companies.

f. Prepare plans and recommendations in connection with equipment and supplies for Ordnance units. (Does not include technical supplies for the execution of missions but pertains only to T/O and T/E supplies for the company's own internal use and maintenance).

g. Conduct necessary liaison to assure satisfactory medical evacuation and support to Ordnance units.

h. Be responsible for the collection and disposition of enemy materiel, coordinating with the Ordnance Intelligence Officer for examination of materiel and evacuation of selected items.

i. Prepare plans in connection with, and supervise disposition of unrepairable salvage and scrap.

j. Prepare plans and secure necessary approvals in connection with requisitioning or allocating fixed facilities or real estate for Ordnance units, including the supervision of necessary internal construction.

k. Such other activities allotted to the S-4 by War Department Manuals as are pertinent and not otherwise specifically assigned.

Section V—Ammunition Division:

19. The Ammunition Division is the agency of the Ordnance Officer for the execution of the following general duties and responsibilities prescribed by FM 9-5.

a. Execution of the Ammunition Supply Plan.

b. Supervision within limits prescribed by the Commanding General of ammunition supply activities in subordinate units.

c. Advisor to the Commander and Staff on technical matters relating to Ammunition and Explosives.

d. Supply of ammunition up to the point of issue to unit trains.

20. The Ammunition Officer will:

a. Supervise, coordinate, and direct the activities of the Ammunition Division.

b. Submit recommendations to initiate or effect changes in the Ammunition Supply Plan. Prepare approved plan.

c. Recommend stock levels for all echelons of ammunition supply within Army.

d. Designate critical items and personally supervise rationing thereon.

e. Recommend location and time of opening of ASP's and Class V Depots and units to be supplied by each. Coordinate with G-4.

f. Personally review daily status reports in combat, and direct necessary action to equalize supplies.

g. Submit to the Ordnance Officer daily report of status of critical items as basis for the Ordnance Officer's report to the Chief of Staff.

h. Conduct necessary liaison with Artillery, Anti-Aircraft Artillery, Engineer, Chemical Warfare Service and G-3, reference future requirements and submit recommendations for necessary action to implement tactical plans.

i. Assure coordination with CWS, reference supply of Chemical Class V items and with Engineer reference supply of mines and demolitions.

j. Establish substitute items for supply.

k. Recommend standards of training and dump operations for ammunition unit and prepare necessary instructions in connection therewith.

l. Personally check availability of ammunition for new and special weapons and make timely recommendations in connection therewith.

m. Inspect operations of ammunition officers in subordinate units.

n. Recommend rules to govern the handling and storage of ammunition and explosives.

o. Assign ammunition supply missions to Ammunition Battalions, advising Group Headquarters of missions assigned.

p. Assure continuous study of ammunition expenditures and requirements and adequate advance planning to meet probable needs.

q. Investigate reports of malfunctions and recommend necessary action.

21. The Ammunition Supply Officer will:

a. Assure maintenance of established ASP levels, with balanced stocks of required items by:

(1) Establishing specific ASP levels by rounds and types.

(2) Preparing all Transportation Orders for interdump shipments.

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(3) Computing and submitting tonnage movement requirement daily and keeping ammunition operations officer advised of transfer requirements.

b. Assure coordination of ammunition movements by advising Depots and ASP's of scheduled arrivals and shipments to be made.

c. Prepare and distribute statistical reports and maintain necessary records.

(1) Receive and distribute ASP reports.

(2) Consolidate, prepare and distribute Army Status Report.

(3) Prepare advice on critical items for the Ammunition Officer's daily report.

(4) Prepare weekly consolidated expenditure report including report of weapons in action.

(5) Maintain experience tables and operational unit of fire chart.

(6) Analyze items in short supply, items expected to be in short supply and new items expected, informing Ammunition Officer accordingly.

(7) Prepare for publication necessary technical information on ammunition subjects.

d. Inform Ammunition Officer of requirements for special projects, such as modifications, special testing, refusing, etc.

e. Prepare draft of ammunition section of Administrative Orders.

22. The Ammunition Operations Officer will:

a. Coordinate assignment of missions with Operations Division and furnish draft of Operations Orders for Ammunition Units.

b. Coordinate requirements for civilian labor and additional non-Ordnance military labor for ammunition purposes (Coordination with S-3).

c. Receive schedule of ammunition shipments from Ammunition Supply Officer, assist Supply Officer, in placing and negotiating transportation requirements, and assure coordination of availability of transport. He will follow all phases of transportation to assure completion of required transfers.

d. Recommend special training projects and assist Battalion Commanders in their accomplishment.

e. Assure the execution of special projects.

f. Procure necessary Engineer assistance to ASP's and Depots (Coordinate with S-4).

g. Conduct necessary liaison with Battalion Commanders to assure accomplishment of emergency intra-battalion stock transfers.

h. Advise commanders with respect to special equipment for ammunition operations.

i. Maintain labor and transportation experience tables.

j. Conduct liaison with ammunition officers of subordinate units by:

(1) Receipt of and necessary action upon suggestions and complaints by using units.

(2) Investigation of establishment of unauthorized dumps and recommendations as to necessary action.

(3) Act as rationing representatives when so directed by the Ammunition Officer.

(4) Provide advice on futures.

(5) Assure that suspended lots are neither drawn nor fired and that malfunctions are reported.

k. Assist Supply Officer by expediting reports from ASP's and from using units.

l. Prescribe or approve collection programs for damaged or expended ammunition.

m. Prescribe evacuation, and/or destruction, and/or guarding of captured Class V, including safety precautions.

n. Assure reporting of new items of enemy munitions to technical section of Army Ordnance.

o. Cause suspended lots to be taken over by Base Section.

p. Authorize use of foreign ammunition in an emergency.

q. Procure and distribute blank forms to all offices concerned.

r. Supervise physical transfer of Army installations to other Armies or to Base Section.

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Section VI—The Chief Administrative Officer:

23. The Chief Administrative Officer will:

a. Direct and control the activities of the general office.

b. Assure the maintenance of an adequate and efficient filing system.

c. Supervise directly the maintenance of all Ordnance Office files not specifically assigned to a Division.

d. Operate an efficient follow-up system on action papers, to assure that necessary action is taken and papers forwarded without delay.

e. Have custody of the SECRET files of the Ordnance Section.

f. Supervise the preparation of the Ordnance Journal.

g. Exercise general supervision over clerical work throughout the Ordnance Office, to assure uniformity, speed and efficiency.

h. Control and supervise the receipt, delivery and dispatch of communications, into, within, and from the Ordnance Office.

i. Maintain the register of communications, and the Register of Classified Documents.

j. Prepare routine indorsements on his own initiative, within limits prescribed by the Executive Officer.

k. Be responsible for the procurement and custody of section property.

l. Represent the Ordnance Officer in personnel matters pertaining to enlisted men of the Section.

m. Prepare necessary duty rosters for Duty Officer, CQ, etc.

n. Inspect outgoing communications to assure proper form and a high standard of workmanship, check for correct routing and enforce compliance with AR 380-5 with respect to delivery of classified documents.

o. Supervise the periodic inspection of all office files of publication preparing necessary requisition to fill deficiencies.

p. Supervise policing activities and duties of orderlies.

q. Assure adequate stocks of office supplies.

r. Coordinate requests for motor transportation and travel of individuals.

s. Maintain charts of all units indicating dates of visits by Ordnance Officer personnel to each.

**Ordnance Troop Units.** The number and type of ordnance troop units assigned to army depend upon the quantity of each major item of ordnance materiel authorized for units within the army, the type of action contemplated, the terrain, climatic conditions, the extent of the army sector both laterally and in depth, and the degree of maintenance and supply support furnished by the communications zone. (See chapter on Ordnance troop units for a discussion of the various units, their missions, and capabilities.)

Third echelon maintenance companies are normally grouped together into battalions, composed of two to five maintenance companies and a depot company under a headquarters and headquarters detachment (T/O 9-76). These battalions and the component companies are highly mobile. They operate in close support of the combat units. They are located in corps areas or in the forward portion of the army area in situations in which the corps area is very shallow. Each company is capable of operating independently of the others, and the component companies may be widely dispersed for closer support of combat units. The composition of any battalion will depend upon the requirements of the tactical situation and the nature of the combat units to be supported. Component companies are readily detached and assigned to other battalions when changes in the tactical situation require. In certain instances, these battalions may include evacuation companies and ammunition companies.

Army ordnance companies, other than those furnishing third echelon support to combat units, are also grouped into ordnance battalions. Being less mobile and operating heavier, more permanent installations, these battalions are located to the rear of the third echelon battalions. In certain situations, various types of companies are combined into a single battalion which is designed for general supply work and fourth echelon maintenance of all ordnance materiel. In other situations, each battalion may be composed of companies of a single type or similar types to do specialized work as required.

Ammunition companies assigned to army normally are grouped into ammunition battalions (T/O 9-15), composed of from two to six companies each. These com-

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panies operate army ammunition depots and ASP's. Bomb disposal units assigned to army may be placed under one of the ammunition battalions or under other ordnance battalions for administration.

Ordnance battalions may be combined into ordnance groups under a Headquarters and Headquarters Detachment, Ordnance Group (T/O & E 9-12), as the situation warrants. Reference to chart on "Ordnance Service in a Theater of Operations".

### Ordnance Operations in Army

**Ammunition.** The army ordnance officer establishes army ammunition depots and ASP's throughout the army sector in order to insure a continuous adequate supply of ammunition at points readily accessible to the combat troops. ASP's must be located so that each combat unit can easily reach at least one ASP, and each ASP must be constantly stocked with a sufficient quantity of each item of ammunition to insure that the troops it supplies can replace each day's expenditure before beginning the following day's operations. Depots must be located and stocked so that the ASP's can promptly replace ammunition issued to troops.

Ammunition in communications zone depots is made available to army by allocations from the theater commander. When this ammunition is required for the initial stocking of army depots and ASP's or for replenishment of their stocks, the army ordnance officer makes calls against army's credits in the communications zone. Shipping requests are submitted to the theater ordnance officer or other ordnance officer designated by the theater commander. That officer makes the necessary arrangements, clears the shipment through the regulating officer, and issues a shipping order directing the communications zone depot to ship the requested quantities and types. When the shipment arrives at the army railhead, truckhead, or depot, the army ordnance officer directs distribution among ASP's and depots in accordance with the stocks on hand at each installation and the levels which have been prescribed for each installation in accordance with the requirements of the tactical situation.

The ammunition in the various ASP's and depots is made available to corps and army units in the quantities and kinds required for their combat missions by army allocations (See: "Improvisations in Army Ordnance Staff Operations" following). These allocations specify the quantity of each type of ammunition and the ASP or depot at which it is located. An allocation remains effective until exhausted or until expressly cancelled. The corps and other units to which army allocates ammunition submit at specified intervals reports showing the unused balance of allocations. These reports are the basis for new allocations.

For complete discussion of ammunition supply, see Volume III, Chapter 4.

**General Supply.** Ordnance General Supply requirements of using troops are normally met by the maintenance company supporting them. The maintenance company, in turn, obtains its resupply from the nearest field depot, and the field depot obtains resupply directly from an ordnance general supply depot in the communications zone. In certain instances, a third echelon maintenance company may obtain resupply from a fourth echelon maintenance company, which may be supplied by either a field depot or from a communications zone depot. If the combat zone is extended in depth and geographical considerations prevent an advance of the communications zone, a base depot may be established in the rear army areas as a link in the supply chain between army field depots and the communications zone depots.

The army commander, acting upon the recommendations of the army ordnance officer, prescribes a supply level for each field depot and each maintenance company. A supply level is stated in terms of days of supply. Each maintenance company or field depot computes its stock level for each item by applying the prescribed supply level and the SNL addenda, theater mortality tables, or other replacement factors prescribed by the army ordnance officer to the number of major items authorized to the troops which the maintenance company of field depot is supporting. These stock levels are constantly reviewed and checked by the maintenance company or field depot and are revised with the approval of the army ordnance officer.

Each maintenance company and each field depot is responsible for establishing its initial stocks and maintaining its stock levels. Reports are submitted to the

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army ordnance officer of dues-out. From these reports of dues-out and information received from the theater control point, the army ordnance officer detects critical items. The army ordnance officer requires periodic reports on critical items and may institute special control measures if necessary.

Each maintenance company and field depot stocks a prescribed percentage of each major item authorized to the using troops supported by it. However, echelons of supply are frequently by-passed in obtaining resupply of large major items, in order to facilitate transportation and to reduce loading and unloading. In addition, major items for large quantity replacements or re-equipping of tactical units may be delivered by communications zone personnel to the troops at railheads, specially designated transfer points, field depots, or fourth echelon shops. Track-laying vehicles are delivered to third echelon companies or troops by depot personnel, fourth echelon units and evacuation companies. Wheeled vehicles are delivered under their own power by depot personnel and truck unit personnel. Wheeled artillery is normally delivered by personnel and truck from third echelon units, using organizations, evacuation companies, and truck units.

In the normal supply of tanks and other combat vehicles, it is essential that a final inspection service be performed at the point where these vehicles are moved from the transporters of the evacuation units and turned over to troop units. This service is carried out by selected personnel of Ordnance Heavy Maintenance Companies (Tank). This check will include mechanical condition, serviceability of armament, stowage, accessories, equipment, and, when applicable, food and water. Signal corps personnel should be available to check radio equipment.

Emergency requirements of tactical troops for spare parts and supplies are met on the spot by maintenance company contact parties as far as possible. Routine replacements are normally obtained by personnel of the using unit at the supply section of the maintenance company. Maintenance companies normally obtain resupply by dispatching a detail and trucks to the field depot. Resupply of field depots is effected through dispatching details and trucks to base depots, receiving shipments at railheads, or navigation heads, and by communications zone personnel and trucks.

For a complete discussion of ordnance general supply see Volume III, Chapter 5.

**Maintenance.** Periodic reports of the work performed and the status of work currently in the shops are submitted by maintenance companies through battalions and ordnance groups to the army ordnance officer. Whenever the status of materiel in the shops of lower echelons requires action by the army ordnance officer, special reports of such conditions are submitted to him directly. All ordnance maintenance throughout the army is supervised by the army ordnance officer assisted by the ordnance group and battalion commanders. The standards of maintenance are prescribed by the army ordnance officer and enforced through inspections. Each echelon of maintenance employs its facilities to the maximum and unserviceable materiel beyond the capabilities of the particular echelon is evacuated directly to the next higher echelon. Materiel which cannot be repaired by army ordnance personnel is evacuated to the communications zone through the proper channels in accordance with directions from the army and theater commanders. Modifications of ordnance materiel are made only under proper authorization, but when authorized, army maintenance units perform as much of the work as possible.

Medium maintenance units will be utilized by army to reinforce divisional maintenance units. These medium maintenance units should be sufficiently close to the units being served to give close contact service, due consideration being given to such aspects of the position as terrain, road net, cover, and concealment. In campaigns of rapid advance medium maintenance will be close up to combat elements, whereas in stabilized warfare their location will be relatively farther in the rear.

Heavy maintenance and depot companies should be sufficiently close to medium maintenance companies to give them the closest practicable support. Normally, they should not be so close to the front lines that their withdrawal, if necessary, would be impracticable considering their semi-mobile characteristics. Heavy maintenance and depot companies maintain an aggressive contact with the medium maintenance shops. However, heavy maintenance shops, once established, should remain in operation in the same locality as long as practicable without sacrificing service to lower echelons.

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When special combat troops such as antiaircraft battalions, tank-destroyer battalions, or tank battalions are attached to army or subordinate commands, the appropriate type and number of maintenance units will normally be brought under army command at the same time so as to preserve the proper ratio between combat and service units. These maintenance units will normally be assigned to appropriate ordnance battalions so that their special qualifications may be properly utilized.

In general, maintenance companies should be "leap-frogged" as the using units move. This will enable each company to have as long a time as practicable to complete the work on hand. This may involve frequent regroupings among battalions. Maintenance units should be informed of the tactical situation at all times, so that close liaison may be maintained with units serviced and appropriate defensive measures taken. Maintenance units should be disposed laterally and in depth so as to offer the best possible service to the combat troops.

Each maintenance company should maintain complete information files and folders on the tactical units being supported. These files should contain the unit designation and its T/O or T/O & E, the names and ranks of the officers and enlisted men of the tactical unit who are usually contacted for maintenance and supply, an up-to-date ordnance materiel status record, and records of modifications applied to materiel of the tactical unit and the status of unfinished modifications, the expected life of tubes of artillery pieces, incomplete work orders, and unfilled requisitions. In the event that a maintenance company is shifted to the support of other tactical units, these files are transferred to the maintenance company taking over its assignment, and it will receive the files of the maintenance company which it is to replace. Separate files should be maintained for tactical units which are not organic to divisions so that the file for any tactical unit which is shifted may be sent through ordnance channels to the maintenance company which will support that unit in its new assignment.

Administrative orders will normally announce assignments for service by battalions, leaving the further distribution of work and responsibility among the companies to the battalion commander. These orders must make clear the responsibility of the corps in case of interrupted communications or other conditions.

**Evacuation.** Battlefield recovery is the function of the division or other using unit. Evacuation is the function of service units above the division. Damaged materiel is placed at collecting points by combat personnel, supplemented by service personnel when necessary. Ordnance personnel inspect damaged ordnance materiel at the collecting point and determine the extent of the required repairs and the maintenance unit to which it should be evacuated. Repairable materiel is transported to the appropriate maintenance shop for repair and reclamation. Heavy materiel, particularly tanks, self-propelled artillery, and other track-laying vehicles, is transported by evacuation companies. These companies may be attached to lower echelons, particularly armored divisions, when the distance from collecting points to division maintenance shops is greater than the reasonable operating radius of the organic evacuation company vehicles.

Using organizations are responsible for turning in unserviceable items, including parts, sub-assemblies, and assemblies for reclamation. This is normally accomplished by exchanging the unserviceable item for a serviceable item at the supporting maintenance company. If it is not feasible to effect a direct exchange, the using unit nevertheless is responsible for turning in all unserviceable materiel as soon as practicable. Upon receiving unserviceable parts or equipment, the maintenance company promptly effects all repairs and reclamation with the capabilities of its facilities and places the repaired or reclaimed items in its stock. If the repaired items are not required in the maintenance company's stock, they are turned into the nearest field depot. Items which cannot be repaired by the company are evacuated to the next higher maintenance echelon.

General policies laid down in the preceding paragraphs may be given practical application by the S.O.P. for a field army which will be found in Annex 5 at the close of this chapter.

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## THE CORPS ORDNANCE STAFF

**Mission.** The mission of ordnance service in a detached or independent corps is the same as in the army. When a corps is part of an army, it operates, as far as practicable, as a purely tactical unit and the functions of supply and maintenance are performed by the army service troops.

**Activities of Corps Ordnance Officer.** *In a separate or detached corps.* The responsibilities and duties of the ordnance officer are the same as those of an army ordnance officer.

*In a corps operating as a part of army.* The ordnance officer, as a member of the special staff, has the duties of a staff officer. In addition, he is the munitions officer of the corps, determining the ammunition requirements of the divisions and other units assigned or attached to corps and reallocating to them ammunition allocated to the corps by army. He is responsible for determining the ordnance maintenance and supply requirements of the corps and for making recommendations to army concerning those requirements, including the location and stocking of ASP's and ordnance general supply field depots, the disposition and assignment of maintenance units and other ordnance units, and all matters affecting army ordnance service to the corps and its subordinate units. It is essential that he maintain close liaison with the army ordnance officer, the division ordnance officers, and with the entire staff of the corps commander.

In certain situations, a corps operating under army may perform some of the service functions normally carried out by the army. In this event, the corps ordnance officer will have the duties and responsibilities which are incident to the particular ordnance service function.

**Organization.** *In a separate or detached corps.* The facilities, operations, and organization of ordnance service in an independent corps are similar to those of an army.

*In a corps operating under army.* In a corps operating under army, the ordnance service consists of the corps ordnance office which may be organized as shown in chart below.

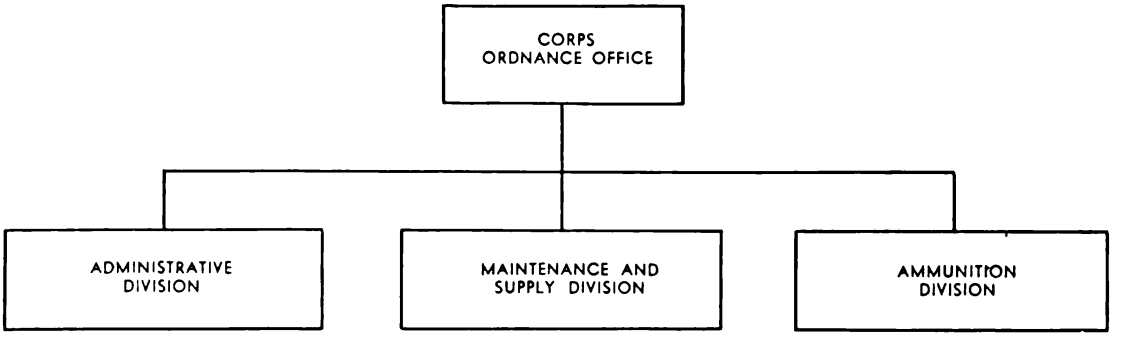



**Figure 8. Organization of Corps Ordnance Office.**

Operating Procedure. The corps ordnance officer will prepare and distribute a standard operating procedure for ordnance similar to that of army in situations where corps is detached or separated, or an SOP not unlike that for division ordnance when operating under Army. The SOP will largely be determined by the responsibilities allocated to corps by the Army ordnance officer in this latter case.

**Improvisations in Corps Ordnance Staff Operation.** Whereas the operations plan for a corps operating in combat under army has envisaged the control of ordnance maintenance and ammunition troops by the army ordnance officer certain improvisations are currently used in the field which have enabled a more suitable, and hence a more expeditious, ordnance service to combat units. A typical improvised plan will be found to incorporate the following:

Ordnance maintenance companies (organized under a battalion set up) are provided the corps ordnance officer for designation of service assignments to units of the corps, and to furnish support of divisional ordnance as deemed requisite by the corps. Under this arrangement the corps ordnance officer is enabled to carry out extensive maintenance responsibilities within the corps area (in effect as delegated by the army ordnance officer) and therefore a desirable increase in efficiency, mobility, and flexibility is attained from the resulting de-centralization of opera-

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tions. A secondary advantage, from the tactical viewpoint, is that such a plan does not serve to increase the administrative burden of corps since this is retained by army.

Units of fire, or other measures as convenient, are designated for ammunition supply levels in the various ASP's. Based upon daily status reports, replenishments of stock are forwarded to the ASP's. Ammunition forwarded under this arrangement and for corps is received at a point in the corps area under control of the corps ordnance officer. It will be noted in Annex 5, Army Ordnance SOP, this point is designated a corps ASP. In lieu of re-allocations discussed above, the corps ammunition officer directs shipment to the various ASP's supporting divisions, based upon the D.O.O. status reports. It is seen the formulation and processing of many allocation reports is obviated by the plan. An appreciable reduction in paper-work and also simplification of records is afforded ASP's. The usage of transportation orders is continued, as discussed in Ammunition Supply, Chapter 4 of Volume III. Ammunition troops, however, are assigned to and controlled by the army ordnance officer. Readers will observe a further variation of this improvised plan, through references to the chart titled "Flow of ORD Gen Supplies, Ammunition and Maintenance," included in Annex 1 of this chapter. Further, the field has determined, in executing the above ammunition supply plan, certain basic quotas of the various types of ammunition are in general consistent demand virtually every day. Therefore, in practical application and to further insure dependability, army will direct shipments of such items in advance of receipt of the daily status reports. When so conducted, overages in the daily shipment become stockage in the ASP for consumption later—Shortages normally represent a relatively small requirement and hence an easier supply and shipping problem for the army ammunition officer.

## THE DIVISION ORDNANCE STAFF

**Mission.** The Division Ordnance Staff is a planning and coordinating agency. By constant personal observation and inspection it maintains a picture of the condition and supply of ordnance materiel within the division and thereby develops plans to solve the problems encountered and then supervises the execution of the plans approved by the Commanding General (C. G.) through G-4. In short, its mission is to provide ordnance service to the division by using such ordnance troops as are available.

**Functions.** The Division Ordnance Officer (D.O.O.--Lt. Col.) is a member of the Division Special Staff having two officers as assistants—the Division Maintenance & Supply Officer (Ass't D.O.O.-Major) and the Division Ammunition Officer (D.A.O.-Capt.). Most of the operations of the D.O. Staff are coordinated and controlled by the Div. G-4. Some C.G.'s prefer direct contact with their special staff officers, but generally the D.O.O. advises G-4 who in turn coordinates all Special Staff information and gives the C.G. the whole picture. Briefly, the D.O.O. advises his C.G. through the G-Staff-on all ordnance technical matters.

Since ammunition supply is a vital part of tactical plans, the D.O.O. must contact G-4 and G-3 to determine the needed quantities and types of ammunition for the particular operation planned. There may be several plans, each requiring different specified types and amounts of ammunition. He then makes certain it is procured and placed in the best supply points (A.S.P.) available to the troops. Therefore he frequently makes recommendations for new A.S.P. locations which he has reconnoitered and deems satisfactory. Naturally, his past experience on availability, location, and desired types of ammunition is invaluable information to aid the formulation of G-3 and G-4 plans.

*Duties of the D.A.O.* The D.A.O. with his enlisted men assistants does all of the detailed work for the D.O.O. including operating the Division Ammunition Office (D.A.O.). The latter serves as a division control point for division ammunition trains from organic units. There the D.A.O. handles all division credits (ammunition) and approves requests for ammunition by the using troops according to priorities and quantities as set up by G-3 and G-4. He also checks the ammunition trains to ascertain whether enough trucks are dispatched to carry the ammunition needed. In an emergency the D.A.O. may sometimes help a Train Commander get additional trucks (through G-4) for hauling critically needed ammunition which

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might result where the convoy was bombed out or depleted for some reason. The D.A.O. is usually located on the Main Supply Route (M.S.R.) between the using units and the A.S.P.'s. The main factor of location is convenient accessibility to all using troops; yet it should still be fairly close to the forward C.P. The D.A.O., as representative of the D.O.O., maintains liaison with A.S.P.'s. By coordination of division activities, traffic control and A.S.P.'s, he schedules the arrival of ammunition trains at the A.S.P. to promote efficient traffic flow for all concerned.

The D.A.O. must know how much ammunition is earmarked for the division at all times and where such ammunition is located. In other words, he furnishes the big picture on ammunition status to the D.O.O. The D.A.O. also must always be prepared to operate a Division Ammunition Dump or Distributing Point if required by headquarters plans. Since his organic personnel is usually insufficient, his best source of labor is the Labor Platoon in the QM Co., or still better replacements coming forward from the rear C.P., or men returning from the hospital. This last source was very successful in Division D.P.'s in Africa. When operating under a higher command, divisions do not establish or operate ammunition supply points, unless specifically authorized by higher authority.

Remember, the D.O.O. must always keep abreast of the ammunition situation—on that score the D.A.O. is his righthand man.

**Maintenance Responsibilities in Division.** Effective maintenance of division ordnance equipment is the direct responsibility of the D.O.O. He must, by the use of his assistants and the Light Maintenance Co., be able to advise the C.G. through G-4, as to the current condition of division ordnance equipment. He must present plans utilizing the organic L.M. and additional higher echelon aid to make damaged and missing equipment available by repair or replacement in sufficient time for use by the troops in battle.

*Mission of the Light Maintenance Company.* Ordnance supply in the division, for all items other than ammunition, is handled through the L.M.Co., planned and supervised by the Division Ordnance Staff. Usually this phase of Ordnance work is planned and coordinated by the Ass't D.O.O. whose main duties are maintenance and supply.

Since maintenance and supply are inseparable activities, one depending on the other, it is vital for the officer involved to know the whole picture of both.

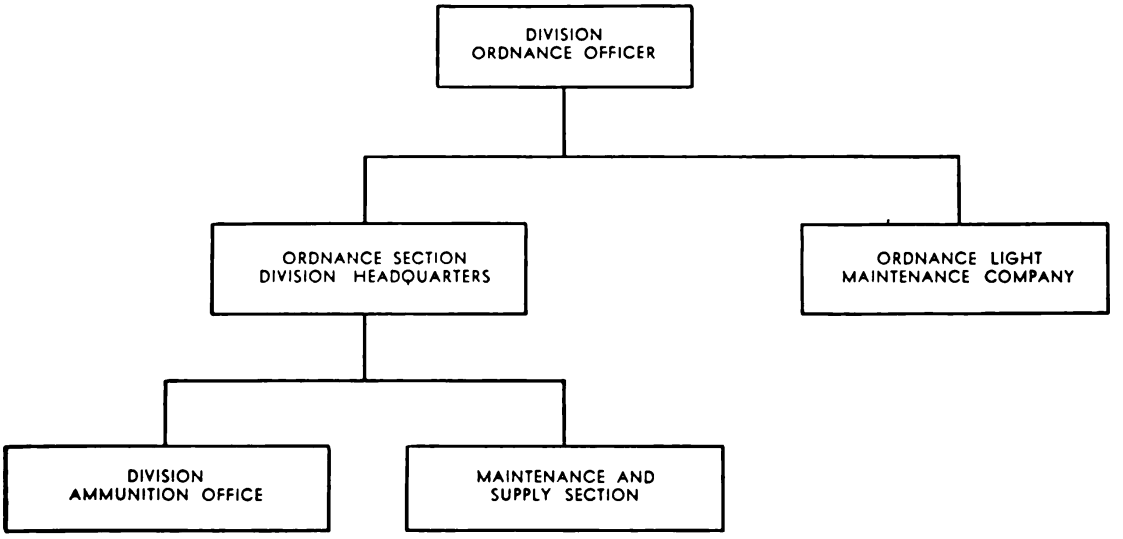



**Figure 9. Organization of Ordnance Service, Infantry Division.**

Therefore constant personal inspections combined wih these done by the L.M. Co. personnel are necessary to keep him posted on the condition of Ord equipment (vehicles and weapons) within the division. Bad maintenance practice or old equipment overloads the supply work done by the ordnance troops. Current charts on maintenance and status of equipment enable the ass't D.O.O. to foresee supply needs in addition to planning action needed to improve maintenance procedures conducted by the using troops and ordnance personnel.

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The D.O.O. must have up-to-date figures on hand which show the condition of equipment; what is in repair shops (both L.M. Co. shop and higher echelon) which will be available in time for use in battle; and the capabilities of evacuation and repair in actual numbers (trucks and weapons) of the ordnance troops working for the division.

The D.O.O. is expected to aid the G-1 in interpreting and evaluating the capabilities and limitations of enemy materiel. He must utilize his staff and the L.M. Co. personnel to watch for new types of weapons and equipment developed and used by the enemy both on the battlefield and in technical literature received through channels. Naturally such information as is derived from the battlefield should be immediately forwarded through technical channels to higher echelon for more complete study.

New weapons and equipment issued to our own troops require technical advice and training also. This phase is coordinated through G-3.

**Training.** The design, planning, and supervision of ordnance troop training is the constant job of the Division Ordnance Staff. "As the Sapling is bent so the Tree grows." Therefore to promote efficient, effective operations by both the organic ordnance troops and 2nd echelon maintenance and supply personnel, a definite training program should be followed.

Special emphasis should be placed on night operations and blackout discipline, security and camouflage training of the L.M. Co. This applies to both the operations of the company as a unit and to those operations conducted by small groups such as contact or repair parties, wrecker parties, and bivouac reconnaissance parties. Individual competence in map reading is mandatory, since many ordnance repair missions may be conducted by only two or three enlisted men in every conceivable part of the division area. Repair parties dispatched must waste no time finding their destination and returning. A lost contact party for even a short period of time is an inexcusable waste of manpower.

While the division is in training, use the ordnance technical schools to the limit commensurate with the accomplishment of garrison duties. When E.M. return, make certain plenty of practical work is provided even if it must be created. Technicians forget their skills quickly when not performing assigned jobs.

Constant training in the use and repair of all weapons and vehicles in the division has proven invaluable in battle zones. Many ordnance units have found it necessary to utilize the equipment they were working on to drive off attacking combat enemy patrols.

In order to insure effective maintenance procedures within the division, a wise D.O.O. will suggest to the C.G. that the division ordnance staff plan and supervise the training of 2nd echelon maintenance personnel. With the C.G.'s approval in hand, develop weapon and automotive schools using the L.M. personnel or higher echelon personnel as group instructors. Then be sure to train 3 deep. 3 deep means train three men for each T.O. job, such as Armor Artificer etc., so that personnel turnover and promotion would not decimate the trained ranks within organic units of the division. If necessary conduct 2 or 3 consecutive sessions to assure sufficient trained personnel. Then sell Unit Commanders on the idea of farming out their mechanics to the organic ordnance unit for work on their own materiel under ordnance troop's supervision.

Furthermore, effective maintenance and supply operations must have a definite 1st, 2nd, and 3rd Echelon Standard Operating Procedure (S.O.P.) established in order that all echelons conform to the division policy. Follow it religiously during training. Make it short, simple, and flexible to provide for the exigencies of battle conditions.

**Inspections.** Since the D.O.O. is responsible for the technical inspection of all ordnance equipment within the division, his ass't D.O.O. as his aide must foresee the enormous task and plan its accomplishment as a daily job and not wait six months for it to pile up. Plans must be coordinated with G-3 to assure a constant flow of a FEW weapons and vehicles into the Ordnance Co and its higher echelon aid. This enables the ordnance troops to do a better inspection and provides time and labor to insure all M.W.O.'s (Modification Work Orders) are completed on all materiel within the division.

The division ordnance staff and the L.M. Co personnel must consider themselves

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maintenance missionaries and continually observe and aid 2nd echelon personnel in their work. The better the job done by 1st and 2nd echelon in their phase, the less work is required in 3d echelon. Ordnance troops in France have used spot checks of motor vehicles to enforce proper 1st and 2nd echelon maintenance of motor vehicles. Such checks were made at random conducted by small ordnance inspection teams drawn from L.M. and M.M. companies. Enforcement can be accomplished by means of reports sent through command channels. This same method can be adapted to weapons and supply procedures.

**Liaison.** Much of the activities mentioned above in "Inspections" is part and parcel liaison, but liaison as interpreted here means contact made with commanders of using troop units and contact with higher echelon maintenance and supply units.

Contact with unit commanders of using troops is a vital part of the Division Ordnance Staff activity. Remember the Ordnance Officer is a salesman from beginning to end. He sells his ideas, plans, technical experience, and equipment to his CG and to all the using troops. He must therefore maintain cordial relations and, above all a reputation for accomplishing his promises and estimates. Think of the BEST SALESMAN you ever knew and check his qualities against yours.

The enormous job of maintenance and supply of the division is impossible to accomplish without the aid of higher echelon Ordnance troops. Personal visits determining their capabilities and procedures must be a part of the division ordnance staff curriculum. These contacts apply to all Ordnance Units immediately concerned with serving the division in maintenance, and the supply of ammunition and equipment. A coordination of higher and lower echelon activities invariably steps up effective higher echelon aid.

Most Theaters of Operations utilize the Corps Hdgtrs as a tactical unit. Very little of maintenance and supply activity is handled by corps in that set-up except for the supervision of ammunition from a staff viewpoint. In such a set-up, very little liaison is necessary by the D.O.O. with Corps except for the ammunition picture. Instead liaison with army installations is done directly and continually from the standpoint of mutual assistance in all maintenance and supply problems.

However, one large overseas operation specifically assigns maintenance battalions and A.S.P's to all Corps. Additional maintenance and supply units are kept under Army control to support Corps activities. When Corps Ordnance operates in this manner all liaison with higher echelon performed by the D.O.O. would be with Corps Hdqtrs and Corps Units.

**Location of D.O.O. Section.** The location of the D.O.O. section is often a subject of contention in Divisions. Logically, there are four possible locations:

1. Ord. Co. Bivouac
2. D.A.O.
3. C.P. Forward Echelon
4. C.P. Rear Echelon

Naturally, the C.G. decides, but the D.O.O. has the right to suggest his preference judged by the prevailing need and situation. Each of the four possible locations has advantages and disadvantages.

Perhaps the best all-around location is at the L.M. ordnance company bivouac. This is the center of all ordnance activity in the division from 2nd echelon up to 3d and those operations identified with supporting ordnance units. Daily trips to G-4 at the forward C.P. are necessary for reports, meetings with unit S-4's, discussion of policies, and plans with the other G-Staff members. These may be made by the D.O.O. or his assistant. Location with the ordnance company insures constant supervision and observation of ordnance activities. *But, remember the Ordnance Company C.O. must remain C.O. and not become a company clerk as a result of Staff interference.* Any member of the division ordnance staff in concerning himself with the details of the ordnance company operations receives only a picture of 3rd Echelon maintenance and supply while the entire scope of 1st, 2nd, and 3rd Echelon is the Div. Ord. Staff's domain. Therefore the staff must be maintenance and supply missionaries at large.

Since both the Ord. Co. and the D.A.O. have daily contact with the using troops, their locations serve admirably as bases of operations, first because the division ordnance staff is easily contacted by using troops needing help; and second, any

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member of the staff may follow ammunition trains and returning repaired materiel direct to the units bivouac without difficulty or loss of time.

One division overseas reported it had followed the policy of establishing the D.O.O. with the D.A.O. which is usually located on the MSR between the forward C.P. and the Ordnance (L.M.) Company. That arrangement proved very satisfactory as all units go through the D.A.O. for ammunition and at the same time can carry on other business without going out of their way. Due to the enormous amount of replacements of major items and the lack of sufficient supplies, it was necessary for the D.O.O. to allocate all major items. His location here in addition facilitated control.

Many CG's desire their DOO's to accompany the forward CP. There are obvious advantages to this base of operation. The DOO and his section are in continual contact with G4 and thereby are always cognizant of both the combat and administrative situations. Their plans for ordnance maintenance and supply are obviously facilitated by this close contact with command channels. Besides, technical advice required by any G Staff member or the General is on hand any time it is needed. The usual operations necessary to provide ordnance service to the division are even more emphasized when the forward CP is used as a base of operations. The division maintenance and supply officer performs his duties by continual liaison with the using troops and supporting ordnance troops. The DAO, as the other hand of the DOO, operates his ammunition office somewhere conveniently located on the MSR, as usual. However, under this set-up he can maintain better contact with the Div. CP even though telephone service may be impossible or knocked out because of the frequent visits by the Div M & S and the DOO.

However, when the forward CP moves frequently and operates very near the front lines, the added personnel of the DOO section is often a hindrance to the effective operation of both the CP and the DOO section.

When the combat situation changes rapidly and is moving forward, the CP loses touch with the administrative or supply side of the situation in attempting to maintain control of the combat troops. In such conditions the wise DOO would pull his section out of the forward CP and operate with either the Ord LM Co or the DAO whichever fits the needs of the troops best. Such an arrangement requires either daily visits by the DOO or his ass't DOO to the forward CP or the constant presence at the CP of either the DOO or his ass't. In other words while one is out checking ordnance operations in the division or in the rear, the other officer is present at the CP available for such technical advice as is required by the G Staff or the General. Meanwhile the DOO section can be operating without interruption either at the Ord LM Co or the DAO, supervised and checked by frequent visits of the DOO or his ass't.

The rear CP generally is out of touch with the using troops as far as the D.O.O. is concerned. This situation renders it impracticable for the D.O.O. to establish his center of operations at the rear C.P.

The deciding factor for the location of the D.O.O. section, or better its base of operations, is that base which permits it to accomplish its mission easier. Since the D.O.O. section is the planning, advising, and supervising agency of ordnance maintenance and supply, its members are continuously on the move performing liaison with the using troops and higher echelon maintenance and supply points, inspecting to find the problems, planning for their solution, and then getting C.G. approval before supervising execution by ordnance units and the using troops.

Therefore the MSR is the 'back alley' of the D.O.O. and his assistants. Continual inspection and observation gives them the big picture. The D.O.O. operates the section to produce the plans. He reports to the forward CP to advise his C.G. on the present maintenance and supply situation, and he gets a decision on his projected plans. Then the cycle continues back through all the units for supervision and observation all over again.

**Operations in Different Type Divisions.** In the Armored Division the D.O.O. (Lt. Col.) operates basically in the same manner except that he has a battalion to provide ordnance service instead of a company. As compared with an infantry division there are two additional Majors; one is the battalion shop officer and the other, the battalion executive officer. In actual practice the executive runs the

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battalion but the shop officer has immediate control of the 3d echelon picture. The D.O.O., Ass't D.O.O. (Major), and D.A.O. (Captain) . . . etc. should retain their status as controlling the entire picture of 1st, 2nd and 3d echelon maintenance and supply as a staff. Frequently the Bn splits, each letter company acting in direct support of a combat command and the Hq (with Supply Platoon) goes with the division trains. If the D.O.O. were involved in controlling the activities of the Bn directly in such a situation, he would find himself inextricably imbedded in administrative details of the 3d echelon phase. His grasp on the control of the whole maintenance and supply situation would be lost.

The D.O.O. of the Airborne Division essentially operates the same as an Infantry Division except that the D.O.O. has less facilities at hand with which he manages. As a result, his plans for Ordnance Service in Combat will include additional aid in the form of an attached Ordnance (M.M.) Co. as soon as Ground Forces effect a juncture with the Airborne Division.

## THE GROUP AND BATTALION ORDNANCE STAFFS

Ordance Battalion Headquarters include those organized under T/O & E 9-76 for maintenance and supply headquarters and T/O & E 9-15 for ammunition headquarters (both for communications zone and combat zone); also 9-66 for the headquarters of the maintenance battalion, armored division. Group headquarters include those under T/O & E 9-12 for combat zone operations and 9-312 for communications zone operations. (See Chap 7, Vol I for reference to *operations* of these units.)

Normally, the commanders in such headquarters are not staff officers in the sense of ordnance special staff officers who are technical advisors to commanding officers of troop units or of areas. They are, instead, commanding officers of their battalions or groups, with ultimate responsibility for their tactical direction as well as for their administration. There is, however, a likely exception in practice—in the case of the ordnance base group commander who may in fact be the ordnance special staff officer for the base section, or other communications zone section, or for the communications zone area as a whole. This is especially likely to happen where the zone is not large and the variety of units and their geographical spread is not great. This staff duty, where it occurs, is distinct from his role as commanding officer of the group and its component battalions and companies.

While, as stated, the battalion and group commanders are not, as such, staff officers, a portion of their actual duties are typical of those of staff officers. By that is meant particularly their planning and other advisory functions. In this role, the group commander is in effect a staff advisor to the army ordnance officer in the combat zone and to the communications zone ordnance officer in that rear area. But to the group commander's subordinate officers and troops, he is not a staff officer but a commanding officer; and those subordinate officers comprise the staff of that group commander.

Similarly, the battalion commander is an advisor to his next higher commander, whether group or army ordnance or communications zone ordnance, while primarily he commands the battalion and its component companies with the assistance of the subordinate officers who are members of his staff.

The commander of the maintenance battalion in the armored division is a good example of the dual role that is performed by certain officers. He is also the ordnance special staff officer on the staff of the commanding general of the division. These are two distinct duties—just as much as in the case of the infantry's division's artillery officer.

The battalion and the group carry on their day-to-day operations under their S.O.P.s. These are all the functions which can be reduced to a routine system. For particular operations, the units will execute the plan prepared—that is, they will be so located, support combat units, provide collecting points, establish liaison, operate such evacuation channels, furnish such special ordnance service, etc., as will be required by the ordnance plan to support the tactical operations.

A battalion SOP is an example of a staff-at-work. It shows the working system that the commander and his subordinate officers have and how the battalion should operate in carrying out the ordnance plan of which they are a part. An illustrative

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SOP is shown in Appendix VII. It is merely "one way". It is not meant to be applicable in all situations. The method of operation—blanket or battalion control point—is dependent on the particular situation, and likewise, the method of supply of the companies—supervised direct requisitioning by the companies or consolidated requisitioning by the battalion—is dependent on the policy of the higher command.

## AMPHIBIOUS OPERATIONS

An amphibious operation is an expedition dispatched by sea to make a landing assault on a hostile shore. The composition of the task force involved is determined by joint planning and training of Army, Navy, and Marine personnel. Army landing forces are organized to facilitate embarkation and debarkation, to attain a powerful invasion force, and to provide logistic support of the operation. The logistic functions for this unit will be accomplished by a "shore party" to which ordnance personnel may be added when considered feasible. The shore group is the task organization of the landing force for the control of army administrative functions on the beach. This group includes the shore parties augmented by necessary service personnel. Ordnance personnel would normally be included. A large portion of the equipment used by the combat troops to establish, consolidate, and extend any beachhead consists of ordnance materiel. Ordnance units which are included in the task force organization must be especially organized and equipped to perform the ordnance service to the force. It is therefore very necessary that a definite and specific ordnance plan be included in the general over-all plan for the proposed operations, with emphasis on those necessary items normally included in class IV and V supply.

**Planning.** If ordnance troops are included in the initial phases of the landing operation, the plan for these troops will be based upon the tactical plan of the units they support. In order to prepare the ordnance annex, the ordnance officer must be advised of the complete plans of the combat teams for seizing the beachhead line, including the number and type of weapons and vehicles with which the task force is equipped.

Selection of tentative sites for initial ammunition storage areas is the responsibility of the shore party commander, who may be assisted by an ordnance officer.

Plans for the debarkation will include the order and priority in which ordnance personnel and equipment are to be debarked.

The Ordnance plan should include in detail the supply, maintenance, evacuation, and replacement of ordnance materiel. The failure of an adequate supply and replacement system may result in the failure of the operation, regardless of the initial tactical success. The following will be included in detail: The selection of appropriate ordnance units to be included in the landing force, and their strength and composition together with details for attachment to combat units, when advisable. Supplies to be taken in the initial ship-to-shore movements, together with detailed plan for packing and stowage. (This, in turn, will depend upon the mission, strength, and composition of the task force; and the supplies required en route, and the amount of beach reserves and landing force reserves to be established and maintained). The level of supplies to be maintained, the amount and kind of materiel to be serviced, the extent of maintenance to be rendered, and the anticipated battle losses and damage to equipment, the schedule of supplies necessary to increase the basic stock to the required landing force reserve level.

The plan should include the numbers of major items to be taken for limited replacement of small arms damaged or lost in landing operations, and the echelon or echelons in which these replacement items will be carried.

So far as practicable, all elements of the task force should be equipped with the same types of weapons and vehicles, in order to simplify the maintenance and supply problems. All ordnance materiel of the task force should be placed in completely serviceable condition, including waterproofing, prior to embarkation, and stowage items carefully checked. Provision should be made for limited inspection and maintenance en route, when warranted by conditions.

The ordnance plan will show in detail the necessary changes to organizational equipment necessary to support the assigned mission.

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Ordnance troops should establish maintenance and resupply functions immediately after they disembark.

The plan should include provisions for a de-waterproofing area, in order to keep litter and debris from beaches and transportation routes.

**Initial Ordnance Troops.** When ordnance troops are attached to the shore party, they will function under the shore party commander. As soon as possible, all advance ordnance personnel will revert to the control of the task force ordnance officer or the army ordnance officer as specified by the task force commander.

The initial ordnance troops should normally consist of ammunition, bomb disposal, general supply, and maintenance personnel.

Ammunition for a battalion landing team will normally be moved from the beach to selected areas by the shore party. During subsequent organization of regimental or divisional supply points, ordnance personnel will be charged with this responsibility. The dispersion of ammunition supply points should be given due consideration so as to provide accessibility to troops units, lateral supply and protection from enemy action.

The bomb disposal detail should be made up of one officer and a sufficient number of enlisted men with equipment to handle any anticipated requirement. When practicable, each detail should be a bomb disposal squad, separate. Bomb disposal personnel will also be able to give advice and assistance on handling of captured enemy ammunition and inspection of suspected booby traps. Ordnance personnel who are not trained in bomb disposal technique should never attempt to handle unexploded enemy bombs.

In the initial landing, ordnance general supplies will usually be limited to replacement items, cleaning and preserving materials, and fast-moving spare parts which will be required during the first few days of operations. Corrosion, due to salt water, will be the most important factor which will cause equipment to become unserviceable. If available, knocked-down bins may be landed in order to set up the depot before stocks arrive.

Maintenance personnel and equipment will be limited to small arms, artillery, and vehicle emergency repair. Usually it will be advisable to consolidate the maintenance and supply operations during the initial stages.

During the early stages, transportation will be nonexistent or very limited. Ordnance contact parties will be prepared to operate on foot, and the service which they can render will be limited to the tools and parts which can be carried on their persons.

As soon as the initial ordnance services have been established, all units should be notified as to their locations. Signs indicating locations of ordnance installations should be made up prior to embarkation in order to be ready for immediate use when needed.

**Operations on Shore.** Usually troops in the initial landing will carry sufficient ammunition to meet their needs, until reserve stocks can be brought in by succeeding waves. Artillery troops usually land with their basic load of ammunition plus a reserve as authorized by the task force commander.

Since the combat troops will be occupied in establishing the beachhead and placing guns in position, it is the duty of the shore party personnel to unload the ammunition onto the beach. It is desirable that this be accomplished under ordnance supervision to assure that ammunition is segregated and stacked by type and caliber on suitable high ground with sufficient dunnage and cover to keep ammunition dry, and that powder charges, fuzes, primers, etc., are available and issued in appropriate quantities and that all safety precautions are observed.

The troops in the initial wave will usually carry a very limited amount of supplies so that their mobility will not be impaired. Boats of later waves will bring in additional supplies. These additional supplies are dumped on the beach and will require rehandling under difficult conditions. Carrying parties must be used to advanace supplies inland to selected sites.

The initial ammunition and general supply points are established near the beach and supplies arriving by boat are moved directly to these points. These locations will have been tentatively selected prior to landing from a study of available maps or aerial photographs. Final determination is made only after careful reconnaissance by the shore party commander, assisted by any advance ordnance ammunition personnel. Factors considered during the selection of these sites are:

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Convenience to boat landings. Cover from enemy observation and fire. Terrain conditions. Traffic routes inland, including beach exits. Facilities for handling supplies and unit trains. Possibilities of expansion. Access to probable routes of forward displacement. Tidal movements.

Every means should be taken to expedite the movement of supplies from the beach to the selected sites. The beach should be cleared as soon as possible to avoid congestion, possible loss of supplies due to enemy action, and to expedite segregation. Suggested aids are: Supplies may be loaded on pallets or skids prior to embarkation. These pallets or skids are then moved intact from the ship to the shore, and tractors or bulldozers may be used to pull them along fairly smooth beaches and trails.

Vehicles may be loaded with supplies and landed completely loaded if sufficient roads are available. The loaded vehicles can then be driven directly to the ordnance area.

When available, amphibian vehicles may be used to haul supplies direct from the ship across the beach to inland sites.

As soon as practicable, complete ordnance maintenance and supply units should be landed. Bivouac areas and depot and maintenance sites should be selected and prepared by the peronnel with the initial force, so that these units can move directly to these areas upon arrival.

**Resupply.** Resupply will be effected by two methods: water and air transport.

The majority of the resupply will be by water transport. In the event that no port facilities are available, the bulk of the supplies will be unloaded from the ship to a lighter, and from the lighter onto the beach. The supplies must then be moved from the beach to the supply points which have been established. Supervision by ordnance personnel must be provided at the point of debarkation, and should be maintained all the way to the supply point. The additional labor required to move all of these supplies normally will be furnished by detail from the army quartermaster service organizations, as provided in FM 100-10.

In the initial planning for the operation, the task force commander may prescribe a procedure for the supply of the ground units by air. Ordinarily the greatest demand on the part of combat troops for resupply by air will be for ammunition and emergency spare parts. During the initial stages, the delivery of supply by air necessarily may be by parachute. Type loads for parachute delivery units are contained in FM 31-40. If air fields are captured or built, air supply can be made by transport planes or gliders. In the event that an air field is established, it is advisable to have a small ordnance detachment on duty at the air field in order that ordnance supplies are properly segregated, safely handled, and directed to the proper point.

**Expansion.** Base depots are established as soon as the advance justifies, and all supplies remaining at supply points near the beach are absorbed by these depots. Reserves in base depots are maintained at a level prescribed in the administrative plan of the task force.

First priority on construction services and personnel are for the building of docks, air fields, and main roads. It may therefore be necessary in the initial stages for the ordnance troops themselves to start the construction work necessary in building a base depot.

The planning for the establishment of ordnance base depots should take into account the fact that many items in excess of T/O & E will be required, and provision must be made for them.

As soon as the situations will allow, ammunition which was landed in the initial waves will be inspected and any unserviceable items will be disposed of by dumping at sea or by another approved method.

When the expansion of the base reaches the point where it becomes an established port, the ordnance problem becomes one of general ordnance service in the combat zone.

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# ANNEX I

# STAFF PLANNING AIDS

The numerous tables, charts and diagrams in this "catch-all" section will be of value to ordnance staff officers accustomed to frequently consulting the more widely used data in FM 101-10 and similar references. Attention is directed to the many tables and logistics charts furnished in Volume II, particularly those to be consulted in the chapters on Artillery, Fire Control, Aviation Ordnance, Automotive, Ammunition Supply and in sections of this volume as well. Staff officers are especially directed to the terminal ballistics data for artillery projectiles and aerial bombs found in Chapters 2 and 4, Volume II respectively.

Steady advancements in designs and changes of materiel frequently out-date reference matter of this kind. The data following will nevertheless be of distinct value as a guide, for instruction, and in planning.

## CALCULATION OF ORDNANCE TROOP REQUIREMENTS

**The Problem of Allocating Ordnance Units.** Staff officers are habitually confronted with the problem of matching available ordnance units with the various using arms and services to be supported; or, in other situations, with planning a complete ordnance service which will adequately meet the requirements for a stipulated number and type of various combat and supporting service units. This problem may frequently be resolved into: a. Ordnance required for divisional support in addition to that furnished by the Light Maintenance Company assigned to each Infantry division; b. Ordnance required for 3rd echelon support of Corps troops; c. Ordnance required for 3rd echelon support of Army units; d. Ordnance required for 4th echelon support within the Army as a whole, and, e. Special ordnance requirements such as antiaircraft maintenance, armored maintenance, bomb disposal (where applicable) and in communications zone planning the requirements for ordnance base units. To assist the ordnance staff officer certain units are organized so as to enable effective service to be given directly to combat units whereas certain other types will be best adapted for maintaining tanks and armored materiel, others for automotive maintenance, and separate groups for handling ordnance general and ammunition supplies. In the various Tables of Organization and Equipment will be found data pointing out the unit's normal capabilities of operation, and as a guide, the number of troops which the unit is expected to support. This data may be found in, Vol. I, Chapter 7, Ordnance Troops. Further, for planning purposes, tables have been compiled showing the requirements of ordnance service for the various types of units as related to combat units. These tables are furnished below. Adjustments to the relation given will be necessary as occasioned from the special needs of the tactical and geographic situations, as well as the availability of ordnance units to your specific problem. Versatility and a broad scope of action conducive to the maximum attainable flexibility in operation of each ordnance unit is the by-word in making allocations of ordnance units.

Credit is gratefully acknowledged to the officers listed for much of the invaluable information contained in the Ordnance plans and operating procedures which follow in the annexes accompanying this chapter;

Colonel J. B. Medaris .....Ordnance Officer, 1st U. S. Army
Colonel T. H. Nixon .....Ordnance Officer, 3rd U. S. Army
Colonel W. E. Becker .....Formerly Ordnance Officer,
Eastern Base Section.



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**Ordnance Units:** (All figures include Atchd Med & Ch.)

*a. Divisional Maintenance Units:*

| Unit | Personnel | | Remarks |
|---|---|---|---|
| A/B Ord Maint Co, T/O 9-87, (9/5/42, & C1) | O | 7 | Organic to AB Div. Performs 3d Ech Maint. Capable of independent operations 3 to 6 days. Includes O2 and EM-9 for Div Ord Sec. |
| | WO | 1 | |
| | EM | 69 | |
| | Agg | 77 | |
| Ord Maint Bn, Armd Div, T/O & E 9-65, (9/15/43) | O | 42 | Organic to Armd Div. Consists of Hq & Hq Co (T/O & E 9-66), 3 Maint Cos (T/O & E 9-67) & Med Det (O-2 & EM-8). Performs 3d Ech Maint & Sup. |
| | WO | 6 | |
| | EM | 724 | |
| | Agg | 772 | |
| Hq & Hq Co, Ord Maint Bn, Armd Div, T/O & E 9-66, (9/15/43 & C1) | O | 19 | 1 per Maint Bn, Armd Div (T/O & E 9-65). Provides base of operations for Maint Cos. |
| | WO | 3 | |
| | EM | 143 | |
| | Agg | 165 | |
| Maint Co, Ord Maint Bn, Armd Div, T/O & E 9-67, (9/15/43) | O | 7 | 3 Per Maint Bn, Armd Div (T/O & E 9-65) |
| | WO | 1 | |
| | EM | 191 | |
| | Agg | 199 | |
| Ord L Maint Co, Inf Div, T/O & E 918, (7/15/43 & C1) | O | 9 | Organic to Inf Div. Performs 3d Ech Maint & Sup. Capacity 30% to 60% of 3d Ech Maint for the Div. Includes O-3 & EM-11. for Div Ord Sec. |
| | WO | 1 | |
| | EM | 137 | |
| | Agg | 147 | |

*b. Field Maintenance Units:*

| Unit | Personnel | | Remarks |
|---|---|---|---|
| Ord Maint Co AA, T/O & E 9-217, (3/28/44) | O | 6 | Normally assigned to Army; basis, 1 Co per 5 AA Bns. Atchd as necessary to Hq of large AA concentrations. Performs 3d & 4th Ech Maint of AA guns, fire control instruments and vehicles. |
| | WO | 1 | |
| | EM | 156 | |
| | Agg | 163 | |
| Ord Hv Automotive Maint Co, T/O & E 9-197, (5/27/44) | O | 6 | Normally assigned to Army. Performs 4th Ech Maint for approximately 2500 wheel vehicles, including Gen purpose vehicles, scout cars, and half-tracks. Can also maintain limited number of small arms. |
| | WO | 1 | |
| | EM | 195 | |
| | Agg | 202 | |
| Ord Hv Maint Co, Field Army, T/O & E 9-9, (7/3/43) C1 | O | 5 | Normally assigned to Army. Performs 4th Ech Maint for Wpns, instruments and a limited number of vehicles. |
| | WO | 1 | |
| | EM | 192 | |
| | Agg | 198 | |
| Ord Hv Maint Co, Tk, T/O & E 9-37, (7/3/43) | O | 8 | Normally assigned to Army. Performs 4th Ech Maint for all types Armd equipment with emphasis on Tks. Capacity 1 Armd Div or its equivalent in equipment. |
| | WO | 1 | |
| | EM | 201 | |
| | Agg | 210 | |
| Ord M Maint Co T/O 9-7, (2/5/44, C1) | O | 6 | Normally assigned to Army. Performs 3d Ech Maint on weapons, instruments, and a limited number of vehicles. Organic to Cav Div with Div Ord Sec of O-3 & EM-16 added. |
| | WO | 1 | |
| | EM | 162 | |
| | Agg | 169 | |
| Ord M Automotive Maint Co, T/O & E 9-127, (5/19/44) | O | 4 | Normally assigned to Army. Performs 3d Ech Maint for approximately 1,200 vehicles under favorable conditions. Small-arms Sec capable of maintaining the equivalent of 1/3 the small arms of Inf Div |
| | EM | 112 | |
| | Agg | 116 | |
| Ord Maint Co Engr Sp Brig, T/O & E 9-97S, (10/11/43) | O | 5 | Organic to Engr Spec Brig. Performs 3d Ech Maint and Sup for motor vehicles, fire control & marine navigation instruments, small arms & Arty. Includes O-2 & EM-7 for Brig Ord Sec. |
| | WO | 1 | |
| | EM | 88 | |
| | Agg | 94 | |
| Ord Maint Co, Rv Arty, T/O 9-47, (4/1/42) | O | 4 | Normally assigned to Ry Arty Regt. Performs 3d Ech Maint. |
| | EM | 82 | |
| | Agg | 86 | |

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**Ordnance Units** (Continued):

*c. Base Maintenance Units:*

| Unit | Personnel | Remarks |
|---|---|---|
| Ord Base Armament Maint Bn, T/O 9-315, (3/23/43) | O ..... 29<br>WO ..... 3<br>EM ..... 694<br>Agg ..... 726 | Consists of Hq & Serv Co. (T/O 9-316), Base Dep Co (T/O 9-377), Armd Veh Maint Co (T/O 9-317), Arty & Fire Control Maint Co (T/O 9-318), Small Arms Maint Co (T/O 9-319). Assigned as required in base shops in Com Z, usually 1 per Army & 1 per Armd Div. Performs 5th Ech Maint on all arms and Armd vehicles. Components Cos cannot operate separately. Bn must operate as a whole. |
| Ord Base Automotive Maint Bn, T/O 9-325, (3/23/43, C1) | O ..... 31<br>WO ..... 2<br>EM ..... 754<br>Agg ..... 787 | Consists of Hq & Serv Co (T/O 9-316), Base Dep Co (T/O 9-377), 2 Automotive Maint Cos (Engine Rebuild) (T/O 9-327), Automotive Maint Co (Power Train Rebuild) (T/O 9-328). Assigned as required in base shops in Com Z, usually 1 per Army. Performs 5th Ech Maint including rebuilding, on all automotive equipment. Component Cos cannot operate separately. Bn must operate as a whole. |
| Ord Base Armd Veh Maint Co, T/O & E 9-317, (10/11/43) | O ..... 6<br>WO .....<br>EM ..... 245<br>Agg ..... 252 | 1 per Ord Base Armament Maint Bn (T/O 9-315). Performs 5th Ech Maint on all types of Armd vehicles, primarily rebuilding of assemblies but may completely overhaul Armd vehicles to include armament. Cannot operate alone, must be in Bn. |
| Ord Base Arty & Fire Control Maint Co, T/O & E 9-318, (10/11/43 & C1) | O ..... 5<br>EM ..... 154<br>Agg ..... 159 | 1 per Ord Base Armament Maint Bn (T/O 9-315). Performs 5th Ech Maint on Arty, fire-control instruments (general & AA) and remote control systems. Cannot operate alone, must be in Bn. |
| Ord Base Automotive Maint Co (Engine rebuild), T/O & E 9-327, (10/11/43, C1) | O ..... 6<br>EM ..... 200<br>Agg ..... 206 | 2 per Ord Base Automotive Maint Bn. (T/O 9-325). Performs 5th Ech Maint by rebuilding standard engines and subassemblies such as generators & pumps. Cannot operate alone, must be in Bn. |
| Ord Base Automotive Maint Co (Power Train Rebuild), T/O & E 9-328, (10/28/43) | O ..... 4<br>EM ..... 139<br>Agg ..... 143 | 1 per Ord Base Automotive Maint Bn (T/O 9-325). Performs 5th Ech Maint by complete rebuilding of power Tn assemblies for reissue to 3d & 4th Ech shops. Cannot operate alone, must be in Bn. |
| Ord Base Small Arms Maint Co, T/O & E 9-319, (12/14/43) | O ..... 3<br>EM ..... 80<br>Agg ..... 83 | 1 per Ord Base Armament Maint Bn. (T/O 9-315) Performs 5th Ech Maint on small arms. Cannot operate alone, must be in Bn. |
| Ord Tire Repair Co, T/O & E 9-347, (5/17/44) | O ..... 5<br>EM ..... 146<br>Agg ..... 151 | Assigned as required to Ord Base Dep. Operates 2 complete tire rebuilding & vulcanizing shops. Performs retreading & sectional repairs. Under average conditions will serve 30,000 to 40,000 vehicles. Equipment capacity equals 130 retreads & 350 sectional repairs per day. |

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**Ordnance Units** (Continued):

*d. Miscellaneous Units:*

| Unit | Personnel | Remarks |
|---|---|---|
| Ord Am Co, T/O 9-17 (4/1/42) | O ..... 6<br>EM ..... 180<br>Agg ..... 186 | Normally assigned to Army, AF or Com Z as required to operate Am Sup Pt or Dep. Can handle 500 to 750 tons per day. |
| Ord Base Dep Co, T/O & E 9-377, (10/11/43, C1) | O ..... 6<br>EM ..... 111<br>Agg ..... 117 | Assigned 1 or more to Ord Base Dep as required. Handles Gen Ord Sup for a balanced force of about 30,000. Additional labor may be assigned from Gen pool or by use of local civilian labor.<br>One Co organic to Ord Base Armament Maint Bn (T/O 9-315) and to Ord Base Auto Maint Bn (T/O 9-325) |
| Ord Bomb Disposal Sqd, Sep T/O 9-179, (11/20/42) | O ..... 1<br>EM ..... 6<br>Agg ..... 7 | Assigned as required. Normally operates in rear areas. Atchd to lower Ech requiring considerable disposal work in a specific area.<br>O serves as Bomb Disposal Officer on staff of appropriate commander.<br>Provides for Ren, removal and disposal of unexploded bombs & shells. |
| Ord Dep Co, T/O & E 9-57, (6/1/43) | O ..... 5<br>WO ..... 1<br>EM ..... 180<br>Agg ..... 186 | Normally assigned to Army or AF to operate Dep supplying all classes ordnance material except Am. Can perform Army Sup for an average of 30,000 men, subject to variations depending on the type of units in the force. |
| Ord Evac Co, T/O 9-187, (10/2/42) | O ..... 6<br>EM ..... 179<br>Agg ..... 185 | Assigned to Army & Com Z as required. Transports Tks & Hv Equip from Com Z bases and Army Dep to Div Distributing points & Evacs Tks from C area to Rep shops. |
| Ord Mtr Veh Assembly Co (Portable), T/O & E 9-348, (5/17/44) | O ..... 6<br>EM ..... 178<br>Agg ..... 184 | As required in Com Z, usually 1 per Army. Located near port of debarkation. Assembles & services vehicles for distribution to field units. Capacity 25 vehicles per day in twin unit packs or 75 per day in single unit packs. Performs 3d echelon Maint for a limited number of wheeled vehicles. |
| Ord Mtr Veh Distributing Co, T/O & E 9-337, (10/8/43) | O ..... 4<br>EM ..... 160<br>Agg ..... 164 | Assigned to Com Z Dep as required, usually 1 per Mtr Veh Assembly Co. Distributes motor vehicles to Fwd units & establishments. |
| Ord Serv Composite Org, T/O & E 9-500, (8/6/43) C1, C2, C3 | Varies | Provides Plats, Cos & Bns consisting of Adm, Dep, Am, Maint, distribution, recovery & bomb disposal teams as required. Plat Hq authorized for 2 or more teams totaling at least 20, Co Hq for 2 or more Plats totaling at least 100. Bn Hq for 3 or more Cos. |

*e. Air Force Units:*

| Unit | Personnel | Remarks |
|---|---|---|
| Ord Maint Co, Air Force, T/O & E 9-257, (9/16/43, C1, C2, C3) | O ..... 8<br>WO ..... 1<br>EM ..... 216<br>Agg ..... 225 | As required, normally assigned to an AF Gen Dep. Performs 4th Ech Maint & overflow 3d Ech Maint of vehicles and armament of an AF. |
| Ord Sup & Maint Co Avn, T/O & E 9-417, (9/29/43) | O ..... 4<br>EM ..... 76<br>Agg ..... 80 | Assigned 2 Cos per Serv Cen.<br>Provides Ord Gen Sup & Am Sup and 3d Ech Maint on automotive & armament equipment. Torpedo Sec 1-O & 10-EM added when Torpedo Sq is being serviced. |

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**Ordnance Units** (Continued):

*f. Bn and Gp. Hq Units:*

| Unit | Personnel | | Remarks |
|---|---|---|---|
| Hq & Hq Det Ord Bn, T/O 9-76, (3/31/43, & C1) | O<br>WO<br>EM<br>Agg | 5<br>1<br>19<br>25 | Normally 2 to 5 Ord Cos will be Atchd to this Hq. Performs administrative functions for a Gp of Cos operating in the same area. |
| Hq & Hq Det Ord Am Bn, T/O 9-15, (4/1/42) | O<br>EM<br>Agg | 4<br>23<br>27 | Normally 2 to 6 Ord Am Cos (T/O 9-17) will be Atchd to this Hq.<br>Assigned to Army & Com Z Dep as required. |
| Hq & Serv Co Ord Base, (Armament or automotive) Maint Bn, T/O & E 9-316, (7/3/44) | O<br>WO<br>EM<br>Agg | 10<br>2<br>129<br>141 | 1 per Ord Base Armament or Automotive Maint Bn. (T/O 9-315, and T/O 9-325 respectively).<br>Provides administrative, Gen overhead and Serv personnel for the Bn. |
| Hq & Hq Det Ord Gp, T/O & E 9-12, (4/15/44) | O<br>WO<br>EM<br>Agg | 12<br>2<br>39<br>53 | Normal assignment Army or Independent Corps. Supervises training and operation of 4 or 5 ordnance Bns. |
| Hq & Hq Det Ord Base Gp, T/O & E 9-312, (6/8/43, C1) | O<br>WO<br>EM<br>Agg | 8<br>2<br>31<br>41 | This unit provides the supervisory & administrative personnel for the Dep Ord Sec of a Com Z Base Gen Dep or a Com Z Branch Ord Dep. The Dep Ord Sec of a Com Z Base Gen Dep normally comprises 1 or more of the following units:<br>Ord Base Armament Maint Bn (T/O 9-315)<br>Ord Base Automotive Maint Bn (T/O 9-325)<br>Ord Bn, Hq & Hq Det (T/O 9-76) comprising 3 to 5 of the following units<br>Ord Am Co (T/O 9-17)<br>Ord Evac Co (T/O 9-187)<br>Ord Mtr Veh Distributing Co (T/O 9-337)<br>Ord Tire Repair Co (T/O 9-347)<br>Ord Mtr Veh Assembly Co (T/O 9-348)<br>Ord Base Depot Co (T/O 9-377)<br>Normally this unit will be utilized to administer a Dep to serve a force with a total strength of 100,000 & over. |

*g. Basis for Computing Ordnance Troop Requirements for the Combat Zone:*

| | M Auto Maint Co | M Maint Co | M Maint Co AA | Hv Maint Co F Army | Hv Maint Co Tk | Hv Auto Maint Co | Dep Co | Evac Co | Am Co |
|---|---|---|---|---|---|---|---|---|---|
| T/O & E | 9-127 | 9-7 | 9-217 | 9-9 | 9-37 | 9-197 | 9-57 | 9-187 | 9-17 |
| Inf Div | .... | 1.0 | .... | 0.25 | .... | 0.25 | 0.4 | .... | 0.5 |
| Light Div | 0.1 | 0.5 | .... | 0.15 | .... | .... | 0.2 | .... | 0.3 |
| Cav Div | .... | 0.5 | .... | 0.15 | .... | 0.3 | 0.4 | 0.1 | 0.3 |
| Armd Div | .... | .... | .... | .... | 1.0 | 0.5 | 1.0 | 1.0 | 1.0 |
| Tank Bn | .... | .... | .... | .... | 0.3 | .... | 0.1 | 0.1 | 0.1 |
| TD Bn (SP) | .... | .... | .... | .... | 0.3 | .... | 0.1 | 0.1 | 0.1 |
| TD Bn (Towed) | .... | 0.2 | .... | 0.1 | .... | .... | 0.05 | .... | 0.1 |
| AA Bn | 0.04 | .... | 0.2 | 0.04 | .... | 0.02 | 0.04 | .... | 0.04 |
| *Cav Regt (Mecz) | .... | 0.4 | .... | .... | 0.2 | 0.1 | 0.15 | .... | 0.1 |
| FA Bn (L & Med) | 0.04 | 0.1 | .... | 0.05 | .... | 0.02 | 0.03 | .... | 0.1 |
| FA Bn (Hv) | .... | 0.1 | .... | 0.1 | 0.1 | .... | 0.05 | .... | 0.1 |
| Engr Bn (C) | 0.1 | .... | .... | .... | .... | 0.05 | .... | .... | .... |
| †QM Trk Regt | 0.6 | .... | .... | .... | .... | 0.25 | .... | .... | .... |

Other units as necessary on a comparative basis.
Bn Hq (T/O & E 9-76) 1 per 2 to 5 Cos.
Gp Hq as necessary and authorized.
This table shows the approximate ratio for the proper balance in field assignments of ordnance units in the combat zone. In specific cases it is subject to the necessary judgment as dectated by conditions.
* Consider as 2 Cav Sqs (Mecz).
† Consider as 12 QM Trk Cos.

Based upon the above table—but with same modification to suit what experience has demonstrated to be advisable—and using the following combat units, we would find a battalion arrangement substantially as indicated below. There would be the Ordnance support for the particular troops in the operations. Note that there is one army of two Corps, comprising a total of five divisions plus Corps and army troops:

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TROOP LIST

I Corps

2 Inf Divs
1 Armd Div
2 Tk Bns
2 TD Bns (Towed)
1 TD Bn (SP)
2 Cav Sqs (Mecz)
6 FA Bns (Lt & Med Trk Dr)
4 FA Bns (Hvy, Tr Dr)
5 AA Bns
3 Engr Bns (C)
12 QM Trk Cos

II Corps

2 Inf Divs
2 Tr Bns
3 TD Bns (Towed)
1 TD Bn (SP)
2 Cav Sqs (Mecz)
6 FA Bns (Lt & Med, Trk Dr)
5 FA Bns (Hvy, Tr Dr)
7 AA Bns
4 Engr Bns (C)
12 QM Trk Cos

Army Troops

3 Tk Bns
3 TD Bns (1 SP)
4 AA Bns
2 Cav Sqs (Mecz)
6 FA Bns (Hvy, Tr Dr)
8 Engr Bns (C)
12 Bns (Misc.)
12 QM Trk Cos

Consider each Bn as requiring .14 MAM and .07 HAM Cos.

ORDNANCE BATTALIONS

1st Bn (Direct support I Corps)
3 MM Cos
1 HM (Tk) Co
Bn Hq

2nd Bn (Direct support II Corps)
3 MM Cos
1 MAM Co.
Bn Hq

3rd Bn (Intermediate area, backing 1st Bn)
2 MM Cos
1 MM (AA) Co
1 MAM Co
1 Dep Co.
Bn Hq

4th Bn (Intermediate area, backing 2nd Bn)
1 MM Co
1 MM (AA) Co
1 HM (Tk) Co
1 MAM Co
1 Dep Co
Bn Hq

5th Bn (Army service area—4th echelon support)
2 HM (FA) Cos
1 HM (Tk) Co
2 HAM Cos
1 EVAC Co
Bn Hq

6th Bn (Army service area—4th echelon support)
1 HM (FA) Co
1 HM (Tk) Co
2 HAM Co
1 EVAC Co
Bn Hq

7th Bn (Army service area—3rd echelon support in area)
4 MAM Cos
2 M (AA) Cos
Bn Hq

8th Bn (Army service area)
4 Dep Cos
Bn Hq

9th Bn
4 Am Cos
Bn Hq

10th Bn
4 Am Cos
Bn Hq

(Note: Two or more Battalions may be organized under a Headquarters and Headquarters Detachment, Ordnance Group (T/O & E 9-12) as the situation warrants.)

**Labor:** a. For long term planning purposes labor requirements for handling supplies are computed on the average of ½-ton per man per hour for ten hours each day. For short periods the average is much higher.

b. The maximum number of men that can be employed advantageously in loading or unloading one freight car is eleven (one foreman and ten laborers).

c. In the field or at a depot, trucks and trailers can be loaded or unloaded at the rate of 20 minutes per truck and trailer unit, regardless of tonnage, if sufficient labor is available. The number of trucks and trailers that can be loaded

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or unloaded simultaneously is dependent upon the amount of labor available and the conditions existing at the loading or unloading point.

| Item | Item Per Man | | |
|---|---|---|---|
| | 3rd Echelon | 4th Echelon | 5th Echelon |
| SMALL ARMS: | | | |
| B.A.R. | 800 | 2000 | 2000 |
| Carbine | 1000 | 2500 | 2500 |
| Machine Gun | 250 | 625 | 625 |
| Pistol | 2500 | 6250 | 6250 |
| Rifle, M1 | 900 | 2250 | 2250 |
| Rifle, M1903 | 2000 | 5000 | 5000 |
| Sub-Machine Gun | 550 | 1450 | 1450 |
| ARTILLERY: | | | |
| Gun, 57mm., AT | 9 | 15 | 22 |
| Gun, 37mm., AA and 40mm, AA | 4 | 4 | 9 |
| Gun, 90mm, AA and 4.7" AA (120mm) | 3 | 3 | 6 |
| Gun, Howitzer, 75mm and 105mm | 4 | 7 | 10 |
| Gun, Howitzer, 155mm and 240mm | 2 | 4 | 6 |
| Mortar, 60mm and 81mm | 75 | 125 | 200 |
| Gun, 37mm Tank | 15 | 25 | 38 |
| Gun, 57mm Tank and 75mm Tank | 8 | 14 | 20 |
| Gun, 37mm Aircraft | 6 | 10 | 15 |
| VEHICLES: | | | |
| Car, Armored and Half-Track | 6 | 20 | 40 |
| DUKW Amphibian | 6 | 18 | 30 |
| Ordnance Technical Vehicle | 15 | 50 | 100 |
| Personnel Carrier | 6 | 20 | 40 |
| Prime Mover, 4 ton and over | 5 | 15 | 30 |
| Scout Car | 9 | 30 | 40 |
| Tank | 3 | 10 | 20 |
| Tank Transport | 4 | 12 | 20 |
| Tractor | 5 | 17 | 35 |
| Truck, up to 2½ ton | 10 | 35 | 70 |
| FIRE CONTROL INSTRUMENTS: | | | |
| Artillery Weapon (1) | 18 | 35 | 30 |
| Antiaircraft Weapon (1) | 4 | 7 | 7 |
| Binocular | 22 | 38 | 32 |
| Watch | 22 | 28 | 28 |

NOTE: (1) Includes on-carriage and off-carriage instruments.

**Truck Loading Capacities.** a. Rated tonnage capacity is in addition to weight of driver and assistant driver (200 lbs. each). Prescribed loads should conform. Maximum pay loads on roads and cross-country, maximum towable loads, and maximum safe speeds are shown on the caution plate attached to each cargo vehicle. Par. 2, WD, Cir 212, May 44 states as follows: "An overload not to exceed 100% is authorized for all general purpose vehicles of all-wheel drive type up to and including 2½-ton, 6 x 6 when operating under favorable conditions on smooth hard-surface roads. Trailers will not be loaded beyond established pay load capacities."

**Prescribed Load.** The prescribed load is a specified quantity of each type of supplies to be carried on unit vehicles and by the personnel. The establishment of this load is a command decision and is dependent upon the tactical situation as well upon the capacity of unit transportation and local terrain. The prescribed load of vehicle(s) may be unloaded at any time in order that the vehicle(s) may be used for other purposes. (Par. 204 FM 100-10). (NOTE: The term *"Basic Load"* is no longer used).

**Maintenance Shops.** For satisfactory operation in the communications zone, covered floor space should be provided for maintenance companies. Advantage should be taken of all existing buildings and facilities. The following estimates are considered to be minimum requirements, which are necessary in addition to the facilities provided by the shop trucks.

Additional floor space in square feet

| SECTION | MM Co | HM Co | HAM Co |
|---|---|---|---|
| Artillery | 1000 | 2000 | |
| Automotive | 2500 | 2000 | 5000 |
| Instrument | 500 | 500 | |
| Small Arms | 500 | 1000 | 500 |

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**Buildings.** Full advantage will be taken of all existing construction. In areas where there are no facilities, portable, sectionalized, light steel or wood construction with a stabilized floor, such as concrete, asphalt, or compacted clay is most suitable. Loose stone or dust creating materials should not be used for floors. The size of buildings is usually governed by engineer standard type construction.

**Ammunition Depots.** The following basic data will be of assistance in planning layouts for ammunition depots in the communications zone. This data has been compiled from the latest reports available from the various theaters of operations and may be adjusted to meet specific requirements on the basis of experience.

a. *Receipts and issues.* Receipts are calculated from days of supply authorized by the proper authority. Issues are calculated from basic loads and theater units of fire authorized by proper authority for the weapons served. It is estimated that expenditures will amount to 5.7 pounds per man per day for ammunition (less AC) and 4.4 pounds per man per day for AC ammunition.

b. *Covered storage space.* Approximately 7.5 square feet per ton based on *total* tonnage of all types, including AC. It should be noted that since only about ¾ of the total tonnage (everything except bombs) requires cover, the factor is actually 10 square feet per ton based on types requiring cover.

c. *Total area.* The total area may be computed on a basis of 10,000 tons, all types, per square mile.

d. *Operating personnel.* Approximately 1.5 tons per man of operating personnel per day. For the operation of a 30,000 tons roadside depot, a full ammunition company will be needed. This operating company will not provide labor for actual handling of ammunition, except to supplement existing facilities in emergencies, but will provide checkers, inspectors, drivers, guides, etc.

e. *Ammunition supply handling data.* In unloading from a railroad car to a truck or to the ground, or from a truck to the ground, civilian and military labor can unload at the rate of one ton per man per hour. In loading under the same conditions, the rate is 0.85 ton per man per hour. Railroad wagons or cars in foreign countries are usually of 10 to 15 tons capacity. In loading or unloading this type of car, it is necessary to provide a minimum of 6 laborers or a maximum of 8 laborers per railroad car. One truck only can be loaded from a side of a car at a time.

**Miscellaneous Estimating Factors.** a. *Maintenance data.* The number of mechanics that are required to maintain various items of ordnance materiel in a theater for third, fourth, and fifth echelons of maintenance, is based on the total number of items to be maintained. For example, for the Gun, 37mm, AT, one third-echelon mechanic is required for each 10 guns; one fourth-echelon mechanic is required for each 16 guns; and one fifth-echelon mechanic is required for each 25 guns. These factors are to be used only as a guide for planning. It is assumed that these mechanics will be part of an organization which will provide administrative personnel and general service personnel, such as supply workers, welders, machinists, etc.

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*a. Basic Data—Ammunition—(Except Aircraft and Chemical Ammunition) (FM 101-10, 12 Oct 44; Chart corrected to 10 Jul 44):*

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| | | | | Container [1] | | |
| 1 Weapon | Day of Supply (Rounds per weapon per day) Z of I | Proportion of Types | Unit of Fire (Rounds per weapon) | Rounds [1] | Gross Weight (pounds) [1] | Average Weight per round incl. packing (pounds) [1] |
| 2 .30 caliber carbine, M1 | 1.5 | 100% Ball | 60 | 2,400 | 80 | 0.033 |
| 3 .30 caliber gun, machine (L and Hv) | 70 | 80% AP<br>20% Tracer | 2,000 | 1,000 | 77 | 0.077 |
| 4 .30 caliber rifle, automatic M1918A2 | 30 | 80% AP<br>20% Tracer | 750 | 1,500 | 110 | 0.073 |
| 5 .30 caliber rifle M1; M.03 | 3 | 80% AP<br>20% Tracer | 150 | 1,200 | 101 | 0.084 |
| 6 .45 caliber gun, submachine | 6 | 100% Ball | 200 | 2,000 | 110 | 0.055 |
| 7 .45 caliber pistol, automatic | 0.2 | 100% Ball | 10 | | | |
| 8 .50 caliber gun, antiaircraft, M2 water cooled | 25 | 80% API<br>20% Tracer | 1,200 | 220 | 71 | 0.32 |
| 9 .50 caliber gun, machine (HB), flexible and fixed | 25 | 80% API<br>20% Tracer | 500 | | | |
| 10 20-mm gun, machine, antiaircraft | (3) | (3) | 540 | 120 | 94.8 | 0.79 |
| 11 37-mm gun, antiaircraft | 8 | 90% HE<br>10% APC | 300 | 20 | 85 | 4.25 |
| 12 37-mm gun, antitank, M3A1 | 6 | 85% APC<br>10% HE<br>5% Cannister | 100 | 20 | 100 | 5 |
| 13 37-mm gun, tank, M6 (combat vehicles) | 6 | 30% HE<br>60% APC<br>10% Cannister | | | | |
| 14 40-mm gun, all types | 8 | 90% HE<br>10% AP | 300 | 24 | 158 | 6.58 |
| 15 Mortar, 2-inch, tank | 1 | 100% Smoke | (3) | 18 | 45 | 2.5 |
| 16 57-mm gun, antitank | 7 | 20% HE<br>70% APC<br>10% Cannister | 100 | 3 | 48.5 | 16.17 |
| 17 60-mm mortar | 7.5 | 90% HE<br>5% Illum.<br>5% Smoke WP | 100 | 18 | 81 | 4.5 |



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| 1 | Weapon | Day of Supply (Rounds per weapon per day) Z of I | Proportion of Types | Unit of Fire (Rounds per weapon) | Container [1] Rounds [1] | Container [1] Gross Weight (pounds) [1] | Average Weight per round incl. packing (pounds) [1] |
|---|---|---|---|---|---|---|---|
| 18 | 75-mm gun, antitank | 6 | 25% HE (Super)<br>75% APC | 50 | 3 | 72.1 | 24 |
| 19 | 75-mm gun, field | ([3]) | ([3]) | 300 | | | |
| 20 | 75-mm gun, tank | 10 | 50% HE (Super)<br>10% HE (Normal)<br>30% APC<br>4% Smoke HC<br>6% Smoke WP | 100 | 3 | 72.1 | 24 |
| 21 | 75-mm howitzer, pack | 25 | 80% HE<br>5% HE-AT<br>4% Smoke HC<br>6% Smoke WP<br>5% H | 300 | 3 | 60 | 20 |
| 22 | 75-mm howitzer, self-propelled and LVT | 15 | 85% HE<br>4% Smoke HC<br>6% Smoke WP<br>5% HE, AT | | | | |
| 23 | 76-mm gun, antitank | 13 | 54% HE (Normal)<br>15% HE (Reduced)<br>23% APC<br>3% Smoke HC<br>5% Smoke WP | ([3]) | 3 | 87 | 29 |
| 24 | 76-mm gun, tank | 10 | 45% HE (Normal)<br>10% HE (Reduced)<br>35% APC<br>4% Smoke HC<br>6% Smoke WP | | | | |
| 25 | 3" gun, antiaircraft, mobile | 5 | 95% HE<br>5% APC | 150 | 4 | 151 | 37.75 |
| 26 | 3" gun, antitank, wheeled and self-propelled mount | 13 | 54% He (Normal)<br>15% HE (Reduced)<br>23% APC<br>3% Smoke HC<br>5% Smoke WP | 75 | | | |
| 27 | 81-mm mortar (Incl. combat vehicles) | 5 | 60% HE (L)<br>25% HE (Hv)<br>15% Smoke WP | 100<br>(70% L<br>30%) Hv | L 6<br>Hv 3<br>WP 3 | 58<br>42<br>45 | 9.7<br>14<br>15 |
| 28 | 90-mm gun, antiaircraft, mobile and fixed and AMTB | 5 | 95% HE<br>5% APC | 125 | 2 | 129 | 64.5 |
| 29 | 90-mm gun, SP | 15 | 60% HE<br>30% APC | | | | |

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| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| | | | | Container [1] | | |
| 1 Weapon | Day of Supply (Rounds per weapon per day) Z of I | Proportion of Types | Unit of Fire (Rounds per weapon) | Rounds [1] | Gross Weight (pounds) [1] | Average Weight per round incl. packing (pounds) [1] |
| 30 105-mm howitzer (M2A1 & M4) field and self-propelled mount | 35 | 80% HE<br>5% HE-AT<br>4% Smoke HC<br>6% Smoke WP<br>5% H | 200 | 3 | 184 | 49 |
| 31 105-mm howitzer, M3, (infantry) | 20 | 80% HE<br>10% HE-AT<br>2% Smoke HC<br>8% Smoke WP | 200 | 3 | 147 | 49 |
| 32 4.2" chemical mortar | 15 | 60% HE<br>40% WP | 60 | 2 | 65 | 32.5 |
| 33 4.5" gun, M1 | 25 | 100% HE | 175 | 1 | 55 | [7] 68 |
| 34 Charge, Prop., 4.5" gun | 25 | 60 Super<br>40% Normal | | 3 | 39 | |
| 35 120-mm gun, antiaircraft | 5 | 100% HE | 90 | 2 | 130 | 143 |
| 36 Charge, Propelling (in case, cartridge, M24) | 5 | 100% Normal | | 2 | 156 | |
| 37 155-mm gun, M1917-18, M1, M1A1 & SP | 25 | 90% HE<br>5% H<br>2% Smoke HC<br>3% Smoke WP | 100 | 1 | 95 | [7] 137 |
| 38 Charge, Prop., 155-mm gun, M1 | 25 | 100% Normal | | 3 | 127 | |
| 39 155-mm howitzer, field, M1 | 25 | 85% HE<br>4% Smoke HC<br>6% Smoke WP<br>5% H | 150 | 1 | 96 | [7] 105 |
| 40 Charge, Prop., 155-mm, howitzer, M1 | 25 | 70% WB<br>30% GB | | 6 | 53 | |
| 41 155-mm howitzer, field, M1917-18 | 20 | 85% HE<br>4% Smoke HC<br>6% Smoke WP<br>5% H | 150 | 1 | 96.4 | [7] 101 |
| 42 Charge, prop, 155-mm howitzer, M1917-18 | 20 | 50% WB<br>50% GB | | 6<br>6 | 40<br>40 | |



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| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| | | | | Container [1] | | |
| 1 Weapon | Day of Supply (Rounds per weapon per day) Z of I | Proportion of Types | Unit of Fire (Rounds per weapon) | Rounds [1] | Gross Weight (pounds) [1] | Average Weight per round incl. packing (pounds) [1] |
| 43 8″ gun, field | 10 | 100% HE | ([3]) | 1 | 286 | [7] 387 |
| 44 Charge, Prop., 8″ gun, field | 10 | 35% GB<br>65% WB | | 1 | 101 | |
| 45 8″ howitzer, field | 18 | 100% HE | ([3]) | 1 | 201 | [7] 236 |
| 46 Charge, Prop., 8″ howitzer, field | 18 | 70% WB<br>30% GB | | 3 | 105 | |
| 47 240-mm howitzer, field (M1) | 10 | 100% HE (360-lb.) | 60 | 1 | 306 | [7] 465 |
| 48 Charge, Prop., 240-mm (M1) | 10 | 100% Normal (for 360-lb. shell) | | 1 | 105 | |
| 49 Grenade, AT, M9A1 per launcher grenade M1, M7, and M8 | ([3]) | ([3]) | ([3]) | 10 | 30 | 3 |
| 50 Grenade, hand, fragmentation, MK IIA1 | ([3]) | ([3]) | [2] 50 | 25 | 53 | 2.12 |
| 51 Grenade, hand, offensive, MK III A2 | ([3]) | ([3]) | ([3]) | 50 | 54 | 1.1 |
| 52 Mine, anti-personnel, M2A3 | ([3]) | 100 HE | ([3]) | 10 | 76.6 | 7.7 |
| 53 Mine, anti-personnel, M3 | ([3]) | 100 HE | ([3]) | 6 | 73 | 12 |
| 54 Mine, antitank, M1A1 & M5 (M1A1=85%, M5=15%) | ([3]) | 100% HE | ([3]) | 5 (M1A1)<br>4 (M5) | 73.5<br>88.7 | 14.7<br>22.2 |
| 55 Projectors, pyrotechnic, hand, M9 (Ground) | ([3]) | Equal proportions AN, M37 to M45, inclusive | 10 | 144 | 72 | 0.5 |
| 56 Launcher grenade, M1 (projector, signal, ground, M4) | ([3]) | ([3]) | 10 | 50 | 65 | 1.3 |
| 57 Rocket, 2.36″, M6 (per launcher, rocket) | 0.20 | 80% HE<br>20% Smoke WP | 6 | 20 | 128 | 6.4 |
| 58 Torpedo, bangalore | ([2]) | | ([3]) | 10 | 168 | 16.8 |

[1] Representative packings are shown. Additional information on the various types of packing may be found in the Army Service Forces Catalogue, Ord SNL's.
[2] Per rifle Co.
[3] Not published.
[4] Per each:
Airborne Engr Bn
Armd Engr Bn
Engr Combat Bn, Sep
Engr Sq
Ltr Co of Sq
Ltr Co Armd Bn
Glider & Serv Co Airborne Bn
Hq Co Armd Bn
Hq & Service Co Airborne Bn
Ltr Co Combat Bn
Bridge Co, Armd Bn
[6] Per each Ltr Co TD Bns.
[7] Complete Round, including Projectile and Charge.
LEGEND: APC=Armor Piercing Cap, AT=Antitank, HE=High Explosive, H=Mustard or other blister gas.

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**Estimated Daily Requirements of Ammunition for Various Types of Combat Expressed in Units of Fire Per Day of Combat:** [3]
(FM 101-10, 12 Oct '44; Chart Corrected to 10 July '44)

| 1 | Type of Combat | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Artillery | | | | AAA [2] | | | AT | |
| | | 75-mm Gun and 105-mm How. | 155-mm How. | 155-mm Gun and larger | Inf. Am. | 37-mm 40-mm cal. .50 & SA | 120-mm & 90-mm Gun | 4.2" Chem. Mort. | 37-mm 57-mm and 75-mm Gun | 3" Gun |
| 2 | Attack of position: | | | | | | | | | |
| 3 | Permanent fortifications: | | | | | | | | | |
| 4 | First day | 2.0 | 2.0 | 2.0 | 1.0 | 0.5 | 0.5 | 2.0 | 1.0 | 3.0 |
| 5 | Succeeding days | 1.0 | 1.0 | 1.0 | 0.5 | 0.3 | 0.3 | 1.0 | 0.5 | 1.0 |
| 6 | Deliberately organized: | | | | | | | | | |
| 7 | First day | 1.5 | 1.5 | 1.5 | 1.0 | 0.5 | 0.5 | 2.0 | 1.0 | 1.0 |
| 8 | Succeeding days | 0.8 | 0.8 | 0.8 | 0.5 | 0.3 | 0.3 | 1.0 | 0.5 | 0.5 |
| 9 | Hastily organized | 0.8 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 1.5 | 0.8 | 0.5 |
| 10 | Covering and security force action | 0.3 | 0.2 | 0.0 | 0.3 | 0.1 | 0.1 | 3.0 | 0.5 | 0.5 |
| 11 | Defense of position: | | | | | | | | | |
| 12 | First day | 2.0 | 2.0 | 2.0 | 1.5 | 0.5 | 0.5 | 3.0 | 2.0 | 2.0 |
| 13 | Succeeding days | 1.0 | 1.0 | 1.0 | 1.0 | 0.5 | 0.5 | 1.5 | 1.0 | 1.0 |
| 14 | Inactive situation [1] | 0.1 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.25 | 0.5 | 0.5 |
| 15 | Meeting engagement | 0.5 | 0.5 | 0.3 | 0.5 | 0.2 | 0.1 | 2.0 | 1.0 | 1.0 |
| 16 | Pursuit | 0.5 | 0.5 | 0.0 | 0.3 | 0.1 | 0.1 | 1.0 | 0.5 | 0.5 |
| 17 | Retirement or delaying action | 1.0 | 0.5 | 0.0 | 0.2 | 0.3 | 0.2 | 3.0 | 0.5 | 0.5 |

[1] Force in contact but neither side attacking.
[2] When used only on AA missions.
[3] Not applicable to Armd Divs.



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**Field Artillery Ammunition Expenditures Expressed in Rounds per Weapon per Hour[1]:** (FM 101-10, 12 Oct '44; Chart Corrected to 10 July '44)

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| | | Average rate per gun per hour | | | | |
| 1 | Kind of fire or phase of action | 75-mm gun or howitzer | 105-mm howitzer | 155-mm howitzer | 155-mm gun | 240-mm howitzer |
| 2 | Advance guard action, development, and deployment | 25 | 25 | 12 | ---- | ---- |
| 3 | Preparation | 85 | 80 | 25 | 25 | 5 |
| 4 | Supporting fires during the attack (including counterbattery): | | | | | |
| 5 | First 2 hours | 70 | 50 | 25 | 25 | 5 |
| 6 | After 2 hours | 40 | 30 | 15 | 15 | 5 |
| 7 | Exploitation, pursuit, delaying action, or delaying enemy development | 25 | 25 | 12 | 12 | 5 |
| 8 | Counterpreparation | 85 | 60 | 25 | 25 | 5 |
| 9 | Defensive fires against infantry attack (including counterbattery) | 70 | 50 | 25 | 25 | 5 |

[1] These figures are suitable for computing expenditures for periods of time less than 6 hours.

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**Ammunition Supply Data—Infantry Division** (FM 101-10, 12 Oct '44; Chart Corrected to 10 July '44)
*a. Units of Fire and Prescribed Loads:*

| 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Unit of fire | | Prescribed Load | | | Unit of fire | | Prescribed Load | | |
| 1 | Type of Ammunition | Rounds | Tons | Rounds | Tons | Units of fire | Rounds | Tons | Rounds | Tons | Units of fire |
| | | ONE INFANTRY REGIMENT | | | | | THREE INFANTRY REGIMENTS | | | | |
| 2 | .30 caliber, carbine | 50,160 | 0.93 | 83,770 | 1.05 | 1.67 | 150,480 | 2.79 | 251,310 | 3.15 | 1.67 |
| 3 | .30 caliber, BAR, MG, and rifle | 355,500 | 14.22 | 593,448 | 23.74 | 1.67 | 1,066,500 | 42.66 | 1,780,344 | 71.22 | 1.67 |
| 4 | .45 caliber, pistol | 2,930 | 0.08 | 5,860 | 0.16 | 2.00 | 8,790 | 0.25 | 17,580 | 0.50 | 2.00 |
| 5 | .50 caliber, MG | 17,500 | 3.17 | 23,100 | 4.18 | 1.32 | 52,500 | 9.51 | 69,300 | 12.54 | 1.32 |
| 6 | 57-mm, AT (M1) | 1,800 | 14.55 | 1,080 | 8.72 | 0.60 | 5,400 | 43.65 | 3,240 | 26.16 | 0.60 |
| 7 | 60-mm, mortar | 2,700 | 6.07 | 2,592 | 5.82 | 0.96 | 8,100 | 18.21 | 7,776 | 17.46 | 0.96 |
| 8 | 81-mm, mortar, heavy | 540 | 3.78 | 414 | 2.90 | 0.77 | 1,620 | 11.34 | 1,247 | 8.70 | 0.77 |
| 9 | 81-mm, mortar, light | 1,260 | 6.09 | 990 | 4.80 | 0.79 | 3,780 | 18.27 | 2,970 | 14.40 | 0.79 |
| 10 | 105-mm, howitzer, (M3) | 1,200 | 29.60 | 492 | 12.52 | 0.41 | 3,600 | 88.80 | 1,476 | 37.56 | 0.41 |
| 11 | Flares, trip | 540 | 0.92 | 540 | 0.92 | 1.00 | 1,620 | 2.76 | 1,620 | 2.76 | 1.00 |
| 12 | Grenade, chemical | 405 | 0.48 | 405 | 0.48 | 1.00 | 1,215 | 1.44 | 1,215 | 1.44 | 1.00 |
| 13 | Grenade, hand, fragmentation | 450 | 0.48 | 450 | 0.86 | 1.00 | 1,350 | 1.44 | 1,350 | 2.58 | 1.00 |
| 14 | Grenade, hand, offensive | 450 | 0.45 | as | required | | 1,350 | 1.35 | as | required | |
| 15 | Grenade, rifle, AT | 2,736 | 4.14 | 4,236 | 6.56 | 1.55 | 8,218 | 12.42 | 12,708 | 19.68 | 1.55 |
| 16 | Mine, AT | 900 | 6.62 | 500 | 3.35 | 0.55 | 2,700 | 19.86 | 1,500 | 10.05 | 0.55 |
| 17 | Rocket | 672 | 2.28 | 672 | 2.28 | 1.00 | 2,016 | 6.84 | 2,016 | 6.84 | 1.00 |
| 18 | Signal, aircraft | 690 | 0.35 | 550 | 0.28 | 0.80 | 2,070 | 1.05 | 1,650 | 0.84 | 0.80 |
| 19 | Sub-Total | ---------- | 94.21 | ---------- | 78.62 | ---------- | ---------- | 282.64 | ---------- | 235.88 | ---------- |

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**Ammunition Supply Data—Infantry Division** (Continued):

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Type of Ammunition | Unit of fire | | Prescribed Load | | | Unit of fire | | Prescribed Load | | |
| | | Rounds | Tons | Rounds | Tons | Units of fire | Rounds | Tons | Rounds | Tons | Units of fire |
| | | ONE FIELD ARTILLERY BATTALION (105-mm Howitzer) | | | | | THREE FIELD ARTILLERY BATTALIONS (105-mm Howitzer) | | | | |
| 20 | .30 caliber, carbine | 26,580 | 0.49 | 53,160 | 0.99 | 2.01 | 79,740 | 1.47 | 159,480 | 2.97 | 2.01 |
| 21 | .45 caliber, pistol | 660 | 0.01 | 1,386 | 0.02 | 2.10 | 1,980 | 0.03 | 4,158 | 0.06 | 2.10 |
| 22 | .50 caliber, MG | 10,500 | 1.68 | 27,720 | 4.44 | 2.62 | 31,500 | 5.04 | 83,160 | 13.32 | 2.62 |
| 23 | 105-mm, howitzer, M2 | 2,400 | 61.20 | 2,196 | 56.36 | 0.92 | 7,200 | 183.60 | 6,588 | 169.08 | 0.92 |
| 24 | Rocket | 240 | 0.82 | 240 | 0.82 | 1.00 | 720 | 2.46 | 720 | 2.46 | 1.00 |
| 25 | Sub-Total | ---------- | 64.20 | ---------- | 62.63 | ---------- | ---------- | 192.60 | ---------- | 187.89 | ---------- |
| | | | | | | | ONE FIELD ARTILLERY BATTALION (155-mm Howitzer) | | | | |
| 26 | .30 caliber, carbine | ---------- | ---------- | ---------- | ---------- | ---------- | 27,540 | 0.50 | 55,080 | 1.01 | 2.00 |
| 27 | .45 caliber, pistol | ---------- | ---------- | ---------- | ---------- | ---------- | 680 | 0.01 | 1,430 | 0.02 | 2.10 |
| 28 | .50 caliber, MG | ---------- | ---------- | ---------- | ---------- | ---------- | 10,500 | 1.68 | 27,720 | 4.44 | 2.62 |
| 29 | 155-mm, howitzer, M1 | ---------- | ---------- | ---------- | ---------- | ---------- | 1,800 | 94.50 | 1,500 | 78.75 | 0.83 |
| 30 | Rocket | ---------- | ---------- | ---------- | ---------- | ---------- | 240 | 0.82 | 240 | 0.82 | 1.00 |
| 31 | Sub-Total | ---------- | ---------- | ---------- | ---------- | ---------- | ---------- | 97.51 | ---------- | 85.04 | ---------- |
| | | | | | | | RECONNAISSANCE TROOP | | | | |
| 32 | .30 caliber, carbine | ---------- | ---------- | ---------- | ---------- | ---------- | 5,940 | 0.11 | 5,460 | 0.10 | 0.91 |
| 33 | .30 caliber, rifle & MG | ---------- | ---------- | ---------- | ---------- | ---------- | 55,900 | 2.24 | 46,748 | 1.87 | 0.83 |
| 34 | .45 caliber, SMG | ---------- | ---------- | ---------- | ---------- | ---------- | 6,000 | 0.14 | 10,080 | 0.25 | 1.79 |
| 35 | .50 caliber, MG | ---------- | ---------- | ---------- | ---------- | ---------- | 1,500 | 0.24 | 1,980 | 0.32 | 1.33 |
| 36 | 37-mm, gun | ---------- | ---------- | ---------- | ---------- | ---------- | 1,300 | 3.25 | 208 | 0.52 | 0.16 |
| 37 | 60-mm, mortar | ---------- | ---------- | ---------- | ---------- | ---------- | 900 | 2.03 | 162 | 0.36 | 0.08 |
| 38 | Grenade, hand | ---------- | ---------- | ---------- | ---------- | ---------- | 1 | ---------- | 120 | 0.13 | ---------- |
| 39 | Grenade, rifle, AT | ---------- | ---------- | ---------- | ---------- | ---------- | 1 | ---------- | 380 | 0.59 | ---------- |
| 40 | Mine, AT | ---------- | ---------- | ---------- | ---------- | ---------- | 1 | ---------- | 72 | 0.46 | ---------- |
| 41 | Rocket | ---------- | ---------- | ---------- | ---------- | ---------- | 30 | 0.10 | 24 | 0.08 | 0.80 |
| 42 | Sub-Total | ---------- | ---------- | ---------- | ---------- | ---------- | ---------- | 8.11 | ---------- | 4.68 | ---------- |

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| | | DIV HQ & HQ CO, SIG CO, ORD CO, HQ & HQ BTRY DIV ARTY, ENGR BN, QM CO | | | | |
|---|---|---|---|---|---|---|
| 43 | .30 caliber, carbine | 48,200 | 0.89 | 62,650 | 1.16 | 1.30 |
| 44 | .30 caliber, MG and rifle | 213,000 | 8.52 | 101,282 | 4.06 | 0.48 |
| 45 | .45 caliber, pistol and SMG | 12,700 | 0.31 | 15,468 | 0.38 | 1.23 |
| 46 | .50 caliber, MG | 22,000 | 3.52 | 45,760 | 7.33 | 2.08 |
| 47 | 57-mm, gun, AT | 300 | 2.42 | 180 | 1.45 | 0.60 |
| 48 | Rocket | 336 | 1.14 | 606 | 2.06 | 1.81 |
| 49 | Grenade, fragmentation | [1] | | 714 | 0.76 | |
| 50 | Grenade, chemical | [1] | | 168 | 0.27 | |
| 51 | Grenade, rifle | [1] | | 1,880 | 2.91 | |
| 52 | Mine, AT [2] | [1] | | 1,600 | 10.20 | |
| 53 | Mine, Anti-Personnel | [1] | | 144 | 0.76 | |
| 54 | Signals, ground | [1] | | 436 | 0.28 | |
| 55 | Sub-Total | | 16.80 | | 31.62 | |
| 56 | Total For Division | | 597.66 | | 545.71 | |

[1] Unit of fire not published.
[2] 1600 mines carried by Engr Bn.

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**Ammunition Supply Data—Infantry Division** (Continued):

*b. Infantry Division—Resupply Capacity of Organic Ammunition Vehicles of the Infantry Regiments and Artillery Battalions:* [1]

| | 1 | | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Unit | | Tractor Medium M5 [3] | Truck 2½-ton | Truck 1½-ton | Trailer 1-ton [4] | Trailer 4-ton Am | Capacity (tons) | Tractor Medium M5 [3] | Truck 2½-ton | Truck 1½-ton | Trailer 1-ton [4] | Trailer 4-ton Am | Capacity (tons) |
| | INFANTRY | | ONE INFANTRY REGIMENT | | | | | | THREE INFANTRY REGIMENTS | | | | | |
| 2 | Serv Co Am Tn | | | 6 | | | | 15.0 | | 18 | | | | 45.0 |
| 3 | Can Co. | | | 3 | | 3 | | 10.5 | | 9 | | 9 | | 31.5 |
| 4 | AT Co [2] | | | | 2 | 2 | | 5.0 | | | 6 | 6 | | 15.0 |
| 5 | Total Inf | | | 9 | 2 | 5 | | 30.5 | | 27 | 6 | 15 | | 91.5 |
| | ARTILLERY | | ONE ARTILLERY BATTALION | | | | | | DIVISION ARTILLERY (3 Bns—105-mm How) (1 Bn—155-mm How) | | | | | |
| 6 | 105-mm How | How, Btry Am Secs | | 6 | | 6 | | 21.0 | | 18 | | 18 | | 63.0 |
| 7 | | Serv Btry Am Tn | | 9 | | 9 | | 31.5 | | 27 | | 27 | | 94.5 |
| 8 | 155-mm How | How Btry Am Secs | 6 | | | | 6 | 37.8 | 6 | | | | 6 | 37.8 |
| 9 | | Serv Btry Am Tn | | 9 | | 9 | | 31.5 | | 9 | | 9 | | 31.5 |
| 10 | Total Div Arty | | | | | | | | 6 | 54 | | 54 | 6 | 226.8 |

[1] Prime movers and weapon carriers not included since they are not normally used for resupply purposes. (Total resupply capacity is therefore generally less than prescribed load.)
[2] 2 1½-ton Trks and 1-ton Tlrs for carrying AT mines in each AT Co.
[3] Carries 24 rounds 155-mm How Am or Approx 2.3 tons.
[4] Tlr, Am, M10 (1-ton capacity) in FA Bns.

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**Ammunition Supply Data—Antiaircraft Units** (FM 101-10, 12 Oct '44; Chart Corrected to 10 July '44)

| 1 | 1 Type of ammunition | 2 Unit of Fire Rounds | 3 Unit of Fire Tons | 4 Prescribed Load Rounds | 5 Prescribed Load Tons | 6 Prescribed Load Unit of Fire |
|---|---|---|---|---|---|---|
| | | | AAA AW BN MBL | | | |
| 2 | .30 cal. carbine | 5,580 | 0.09 | 5,580 | 0.09 | 1.00 |
| 3 | .30 cal. rifle | 89,550 | 3.73 | 89,550 | 3.73 | 1.00 |
| 4 | .45 cal. pistol and SMG | 24,230 | .66 | 24,230 | .66 | 1.00 |
| 5 | .50 cal. machine gun | 164,600 | 26.55 | 164,600 | 26.55 | 1.00 |
| 6 | 2.36" rocket | 192 | .65 | 192 | .65 | 1.00 |
| 7 | 40-mm gun | 9,600 | 31.60 | 9,600 | 31.60 | 1.00 |
| 8 | Grenade, M7 | 252 | .18 | 252 | .18 | 1.00 |
| 9 | Total | -------- | 63.46 | -------- | 63.46 | -------- |
| | | | AAA AW BN SEM | | | |
| 10 | .30 cal. carbine | 5,460 | .09 | 5,460 | 0.09 | 1.00 |
| 11 | .30 cal. rifle | 98,700 | 4.11 | 98,700 | 4.11 | 1.00 |
| 12 | .45 cal. pistol and SMG | 8,230 | .22 | 8,230 | .22 | 1.00 |
| 13 | .50 cal. machine gun | 156,100 | 25.18 | 156,100 | 25.18 | 1.00 |
| 14 | 2.36" rocket | 192 | .65 | 192 | .65 | 1.00 |
| 15 | 40-mm gun | 9,600 | 31.60 | 9,600 | 31.60 | 1.00 |
| 16 | Grenade, M7 | 252 | .18 | 252 | .18 | 1.00 |
| 17 | Total | -------- | 62.03 | -------- | 62.03 | -------- |
| | | | AAA AW BN SP | | | |
| 18 | .30 cal. carbine | 5,340 | .09 | 5,340 | .09 | 1.00 |
| 19 | .30 cal. rifle and machine gun | 93,050 | 3.87 | 93,050 | 3.89 | 1.00 |
| 20 | .45 cal. pistol and SMG | 26,230 | .71 | 26,230 | .71 | 1.00 |
| 21 | .50 cal. machine gun | 239,400 | 38.63 | 239,400 | 38.63 | 1.00 |
| 22 | 37-mm gun | 9,600 | 24.00 | 9,600 | 24.00 | 1.00 |
| 23 | Grenade, M7 | 444 | .32 | 444 | .32 | 1.00 |
| 24 | Total | -------- | 67.62 | -------- | 67.62 | -------- |
| | | | AAA GUN BN MBL | | | |
| 25 | .30 cal. carbine | 5,220 | 0.09 | 5,220 | 0.09 | 1.00 |
| 26 | .30 cal. rifle | 81,900 | 3.41 | 81,900 | 3.41 | 1.00 |
| 27 | .45 cal. pistol and SMG | 21,230 | 0.58 | 21,230 | 0.58 | 1.00 |
| 28 | .50 cal. machine gun | 38,700 | 6.24 | 38,700 | 6.24 | 1.00 |
| 29 | 2.36" rocket | 48 | .16 | 48 | .16 | 1.00 |
| 30 | 90-mm gun | 2,000 | 56.00 | 2,000 | 56.00 | 1.00 |
| 31 | Grenade, M7 | 300 | 0.22 | 300 | 0.22 | 1.00 |
| 32 | Total | -------- | 66.70 | -------- | 66.70 | -------- |
| | | | AAA GUN BN SEM | | | |
| 33 | .30 cal. carbine | 5,100 | 0.09 | 5,100 | 0.09 | 1.00 |
| 34 | .30 cal. rifle | 77,250 | 3.22 | 77,250 | 3.22 | 1.00 |
| 35 | .45 cal. pistol and SMG | 9,030 | 0.25 | 9,030 | 0.25 | 1.00 |
| 36 | .50 cal. machine gun | 26,200 | 4.22 | 26,200 | 4.22 | 1.00 |
| 37 | 2.36" rocket | 48 | 0.16 | 48 | 0.16 | 1.00 |
| 38 | 90-mm gun | 2,000 | 56.00 | 2,000 | 56.00 | 1.00 |
| 39 | Grenade, M7 | 300 | 0.22 | 300 | 0.22 | 1.00 |
| 40 | Total | -------- | 64.16 | -------- | 64.16 | -------- |

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## Ammunition Supply Data—Separate Armored Unit (FM 101-10, 12 Oct '44; Chart Corrected to 10 July '44)

| 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Airborne Tk Bn | | | | L Tk Bn | | | | Sep Tk Co, Hv | | | | Hq & Hq Co, Armd Gp | | | |
| 1 | Type of Ammunition | Unit of Fire | | Prescribed Load [1] | | Unit of Fire | | Prescribed Load [1] | | Unit of Fire | | Prescribed Load [1] | | Unit of Fire | | Prescribed Load [1] | |
| | | Rounds | Tons | Rounds | Tons | Rounds | Tons | Rounds | Tons | Rounds | Tons | Rounds | Tons | Rounds | Tons | Rounds | Tons |
| 2 | .30 cal. Carbine | 8,640 | 0.16 | | | 13,020 | 0.24 | | | 3,360 | 0.06 | | | 3,720 | 0.07 | | |
| 3 | .30 cal. MG—Rifle | 158,250 | 6.05 | | | 375,000 | 14.41 | | | 76,000 | 2.92 | | | 24,000 | 0.93 | | |
| 4 | .45 cal. pistol & SMG | 42,230 | 1.03 | | | 58,630 | 1.41 | | | 24,200 | 0.59 | | | 5,650 | 0.14 | | |
| 5 | .50 cal. MG | 11,500 | 1.84 | | | 10,000 | 1.60 | | | 19,500 | 3.20 | | | 2,000 | 0.32 | | |
| 6 | 37-mm gun, AT | 5,600 | 14.00 | | | 5,900 | 14.75 | | | 1,700 | 4.25 | | | 900 | 2.25 | | |
| 7 | 2.36" launcher, rocket | 48 | 0.16 | | | 220 | 0.75 | | | 30 | 0.10 | | | 80 | 0.27 | | |
| 8 | 75-mm howitzer, pack | 900 | 10.35 | | | | | | | | | | | | | | |
| 9 | 75-mm howitzer, SP | | | | | 9.00 | 10.35 | | | | | | | | | | |
| 10 | 3" gun, Tk | | | | | | | | | 1,275 | 24.20 | | | | | | |
| 11 | 81-mm mortar (light) | | | | | 210 | 1.08 | | | | | | | | | | |
| 12 | 81-mm mortar (heavy) | | | | | 90 | .63 | | | | | | | | | | |
| 13 | Total | | 33.59 | | | | 45.22 | | | | 35.32 | | | | 3.98 | | |

[1] Data not available.

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**Ammunition Supply Data—Cavalry Reconnaissance Squadron, Mechanized:** [1] (FM 101-10, 12 Oct '44; Chart Corrected to 10 July '44)

| 1 | 1 Type of Ammunition | 2 Unit of Fire Rounds | 3 Unit of Fire Tons | 4 Prescribed Load [2] Rounds | 5 Prescribed Load [2] Tons | 6 Prescribed Load [2] Units of Fire |
|---|---|---|---|---|---|---|
| 2 | .30 caliber, carbine | 27,720 | 0.51 | | | |
| 3 | .30 caliber, machine gun and rifle | 315,500 | 12.15 | | | |
| 4 | .45 caliber, submachine gun and pistol | 41,030 | 1.01 | | | |
| 5 | .50 caliber, machine gun | 14,000 | 2.24 | | | |
| 6 | 2.36", rocket | 168 | 0.57 | | | |
| 7 | 60-mm, mortar | 2,700 | 6.08 | | | |
| 8 | 37-mm gun | 6,000 | 15.00 | | | |
| 9 | 75-mm, howitzer | 1,800 | 20.70 | | | |
| 10 | Total | | 58.26 | | | |

[1] Not applicable to Cav Sq, Mecz in Armd Div.
[2] Prescribed load data, not available.

**Prescribed Loads Squadron Train, Cavalry Reconnaissance Squadron, Mechanized:** [1] (FM 101-10, 12 Oct '44; Chart Corrected to 10 July '44)

| | Truck, 2½-ton | Trailer, 1-ton | Tons |
|---|---|---|---|
| a. Cargo capacity (tons) | 9 | 9 | 31.5 |
| b. Items of prescribed loads: | | | |
| (1) Ration and Supplies | 2 | 2 | 7.00 |
| (2) Gasoline and oil | 4 | 4 | 14.00 |
| (3) Ammunition | 2 | 2 | 7.00 |
| (4) Water | 1 | 1 | 3.50 |
| c. Total Prescribed Loads | | | 31.50 |

[1] Not applicable to Cav Sq Mecz in Armd Div.

**Ammunition Supply Data—Chemical Battalion, Motorized.**

*a. Unit of fire and prescribed loads (FM 101-10, 12 Oct 44; Chart corrected to 10 Jul 44):*

| 1 | 1 Type of ammunition | 2 Unit of fire Rounds | 3 Unit of fire Tons | 4 Prescribed load Rounds | 5 Prescribed load Tons | 6 Prescribed load Units of fire |
|---|---|---|---|---|---|---|
| 2 | .30 caliber, carbine | 27,180 | 0.52 | 45,300 | 0.80 | 1.67 |
| 3 | .30 caliber, rifle | 22,650 | 0.94 | 22,650 | 0.94 | 1.00 |
| 4 | .45 caliber, pistol | 30 | 0.00 | 63 | 0.00 | 2.10 |
| 5 | .50 caliber, machine gun | 7,500 | 1.20 | 11,250 | 1.80 | 1.50 |
| 6 | 2.36" rocket | 138 | 0.47 | 138 | 0.47 | 1.00 |
| 7 | 4.2" chemical mortar [1] [2] | 2,880 | 48.00 | 4,404 | 73.40 | 1.53 |
| 8 | Total | | 51.13 | | 77.41 | |

[1] Type of Am (gas, smoke, or HE) prescribed to fit anticipated action.
[2] U/F 60 rounds per Mort. 60 rounds 4.2 Chem Mort Shell per ton.

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*b. Distribution of 4.2 Chemical Mortar Ammunition Prescribed Load:*

| 1 | 1 Unit | 2 Units of fire | 3 Rounds per piece | 4 Rounds per company | 5 Total rounds | 6 Vehicles used |
|---|---|---|---|---|---|---|
| 2 3 | Am Tn, Bn Hq & Hq Co.. | 0.73 | 44 | 525 | 2,100 | 10 Trk, 2½-ton; 10 Trk, 1-ton |
| 4 5 | 4 Wpns Co (ea) | 0.80 | 48 | 576 | 2,304 | 24 Trk, ¼-ton; 24 Tlr, ¼-ton [1] |
| 6 | Battalion (Total) | 1.53 | 92 | 1,101 | 4,404 | Trks & Tlrs. |

[1] Load of Am is in addition to mortars and baseplates.

## Ammunition Supply Data—Separate Field Artillery Units

*a. Unit of fire and prescribed loads (FM 101-10, 12 Oct 44; Chart corrected to 10 Jul 44):*

| 1 | 1 Type of ammunition | 2 Unit of fire: Rounds | 3 Unit of fire: Tons | 4 Prescribed load: Rounds | 5 Prescribed load: Tons | 6 Prescribed load: Units of fire |
|---|---|---|---|---|---|---|
| | | | FA BN 75-mm HOW, PACK | | | |
| 2 | .30 cal carbine | 23,940 | 0.35 | 23,940 | 0.35 | 1.00 |
| 3 | .30 cal rifle, (BAR) | 11,250 | 0.41 | 11,250 | 0.41 | 1.00 |
| 4 | .45 cal pistol | 560 | 0.02 | 1,176 | 0.03 | 2.10 |
| 5 | 75-mm, howitzer | 3,600 | 36.00 | 756 | 7.56 | |
| 6 | Total | | 36.78 | | 8.35 | |
| | | | FA BN 105-mm HOW TRACTOR DRAWN | | | |
| 7 | .30 cal carbine | 25,980 | 0.48 | 43,330 | 0.80 | 1.67 |
| 8 | .45 cal pistol | 670 | 0.02 | 1,407 | 0.03 | 2.10 |
| 9 | .50 cal machine gun | 10,500 | 1.68 | 15,750 | 2.52 | 1.50 |
| 10 | 2.36" rocket | 240 | 0.82 | 240 | 0.82 | 1.00 |
| 11 | 105-mm howitzer | 2,400 | 61.20 | 2,354 | 59.98 | 0.98 |
| 12 | Total | | 64.20 | | 64.15 | |
| | | | FA BN 155-mm HOW TRACTOR DRAWN | | | |
| 13 | .30 cal carbine | 27,540 | 0.51 | 45,900 | 0.85 | 1.67 |
| 14 | .45 cal pistol | 680 | 0.02 | 1,428 | 0.03 | 2.10 |
| 15 | .50 cal machine gun | 10,500 | 1.68 | 15,750 | 2.52 | 1.50 |
| 16 | 2.36" rocket | 240 | 0.82 | 240 | 0.82 | 1.00 |
| 17 | 155-mm howitzer | 1,800 | 94.40 | 1,050 | 55.12 | 0.58 |
| 18 | Total | | 97.43 | | 59.34 | |
| | | | FA BN 155-mm GUN TRUCK DRAWN | | | |
| 19 | .30 cal carbine | 29,220 | 0.54 | 48,700 | 0.90 | 1.67 |
| 20 | .45 cal pistol | 580 | 0.01 | 1,218 | 0.03 | 2.10 |
| 21 | .50 cal machine gun | 9,500 | 1.52 | 14,250 | 2.28 | 1.50 |
| 22 | 2.36" rocket | 204 | 0.69 | 204 | 0.69 | 1.00 |
| 23 | 155-mm gun | 1,200 | 82.10 | 1,200 | 82.10 | 1.00 |
| 24 | Total | | 84.86 | | 86.00 | |
| | | | FA BN 155-mm GUN TRACTOR DRAWN | | | |
| 25 | .30 cal carbine | 29,340 | 0.54 | 48,900 | 0.90 | 1.67 |
| 26 | .45 cal pistol | 610 | 0.01 | 1,281 | 0.03 | 2.10 |
| 27 | .50 cal machine gun | 9,500 | 1.52 | 14,250 | 2.28 | 1.50 |
| 28 | 2.36" rocket | 204 | 0.69 | 204 | 0.69 | 1.00 |
| 29 | 155-mm gun | 1,200 | 82.10 | 870 | 59.50 | 0.73 |
| 30 | Total | | 84.86 | | 63.40 | |

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**Ammunition Supply Data—Field Artillery Units:**
*Unit of Fire and Prescribed Loads (Continued)*

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| | | Unit of fire | Prescribed load | | |
| 1 | Type of ammunition | Rounds | Tons | Rounds | Tons | Units of fire |
| | | FA BN 155-mm GUN SELF-PROPELLED | | | | |
| 31 | .30 cal carbine | 25,980 | 0.48 | 43,300 | 0.80 | 1.67 |
| 32 | .45 cal pistol | 610 | 0.01 | 1,281 | 0.03 | 2.10 |
| 33 | .50 cal machine gun | 15,500 | 2.48 | 23,250 | 3.72 | 1.50 |
| 34 | 2.36" rocket | 204 | 0.69 | 204 | 0.69 | 1.00 |
| 35 | 155-mm gun | (1) | | 924 | 60.96 | |
| 36 | Total | | | | 66.22 | |
| | | FA BN 8-inch HOW TRUCK DRAWN | | | | |
| 37 | .30 cal carbine | 30,480 | 0.56 | 50,800 | 0.94 | 1.67 |
| 38 | .45 cal pistol | 610 | 0.01 | 1,281 | 0.03 | 2.10 |
| 39 | .50 cal machine gun | 9,500 | 1.52 | 14,250 | 2.28 | 1.50 |
| 40 | 2.36" rocket | 204 | 0.69 | 204 | 0.69 | 1.00 |
| 41 | 8" howitzer | (1) | | 750 | 88.50 | |
| 42 | Total | | | | 92.44 | |
| | | FA BN 8-inch HOW TRACTOR DRAWN | | | | |
| 43 | .30 cal carbine | 30,960 | 0.57 | 51,600 | 0.95 | 1.67 |
| 44 | .45 cal pistol | 610 | 0.01 | 1,281 | 0.03 | 2.10 |
| 45 | .50 cal machine gun | 9,500 | 1.52 | 14,250 | 2.28 | 1.50 |
| 46 | 2.36" rocket | 204 | 0.69 | 204 | 0.69 | 1.00 |
| 47 | 8" howitzer | (1) | | 510 | 60.00 | |
| 48 | Total | | | | 63.95 | |
| | | FA BN, 8-inch GUN, TRACTOR DRAWN | | | | |
| 49 | .30 cal carbine | 25,320 | 0.42 | 41,200 | 0.76 | 1.67 |
| 50 | .45 cal pistol | 610 | 0.01 | 1,281 | 0.03 | 2.10 |
| 51 | .50 cal machine gun | 9,500 | 1.52 | 14,250 | 2.28 | 1.50 |
| 52 | 2.36" rocket | 168 | 0.57 | 168 | 0.57 | 1.00 |
| 53 | 8-inch gun | (1) | | | | |
| 54 | Total | | | | | |
| | | FA BN 240-mm HOW TRUCK DRAWN | | | | |
| 55 | .30 cal carbine | 24,720 | 0.41 | 41,200 | 0.76 | 1.67 |
| 56 | .45 cal pistol | 610 | 0.01 | 1,281 | 0.03 | 2.10 |
| 57 | .50 cal machine gun | 9,500 | 1.52 | 14,250 | 2.28 | 1.50 |
| 58 | 2.36" rocket | 168 | 0.57 | 168 | 0.57 | 1.00 |
| 59 | 240-mm howitzer | 360 | 83.60 | 300 | 58.60 | 0.83 |
| 60 | Total | | 86.11 | | 62.24 | |
| | | FA BN 240-mm HOW TRACTOR DRAWN | | | | |
| 61 | .30 cal carbine | 25,320 | 0.42 | 41,200 | 0.76 | 1.67 |
| 62 | .45 cal pistol | 610 | 0.01 | 1,281 | 0.03 | 2.10 |
| 63 | .50 cal machine gun | 9,500 | 1.52 | 14,250 | 2.28 | 1.50 |
| 64 | 2.36" rocket | 168 | 0.57 | 168 | 0.57 | 1.00 |
| 65 | 240-mm howitzer | 360 | 83.60 | 300 | 58.60 | 0.83 |
| 66 | Total | | 86.12 | | 62.24 | |

[1] Unit of fire not published,

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**Ammunition Supply Data—Field Artillery Units:**

*b. Resupply capacity of organic ammunition vehicles in tons:* [1] [3]

| 1 | Unit | 2 Pk Mules | 3 Carrier Cargo | 4 Truck 2½-ton | 5 Truck 7½-ton | 6 Tractor Medium M4 | 7 Tractor Medium M5 | 8 Tractor Heavy M6 | 9 Trailer 1-ton Am M10 | 10 Trailer Am 4-ton | 11 Trailer Am 5-ton | 12 Trailer Am 10-ton | 13 Capacity (Tons) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | FA Bn, 75-mm How Pk | | | | | | | | | | | | |
| 2 | How Btry Am Secs (all) | 48 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | 4.8 |
| 3 | Hq & Serv Btry Am Tn | 36 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | 3.6 |
| 4 | Total Bn | 84 | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | ----- | 8.4 |
| | FA Bn, 105-mm How, Tractor Drawn | | | | | | | | | | | | |
| 5 | How Btry Am Secs (all) | ----- | ----- | ----- | ----- | ----- | 6 | ----- | ----- | ----- | 6 | ----- | 38.2 |
| 6 | Serv Btry Am Tn | ----- | ----- | 9 | ----- | ----- | ----- | ----- | 9 | ----- | ----- | ----- | 31.5 |
| 7 | Total | ----- | ----- | 9 | ----- | ----- | 6 | ----- | 9 | ----- | 6 | ----- | 69.7 |
| | FA Bn, 155-mm Gun, Truck Drawn | | | | | | | | | | | | |
| 8 | Gun Btry Am Secs (all) | ----- | ----- | ----- | 6 | ----- | ----- | ----- | ----- | ----- | ----- | 6 | 105.0 |
| 9 | Total Bn | ----- | ----- | ----- | 6 | ----- | ----- | ----- | ----- | ----- | ----- | 6 | 105.0 |
| | FA Bn, 155-mm Gun, Tractor Drawn | | | | | | | | | | | | |
| 10 | Gun Btry Am Secs (all) | ----- | ----- | ----- | ----- | 6 | ----- | ----- | ----- | ----- | ----- | 6 | 72.3 |
| 11 | Total Bn | ----- | ----- | ----- | ----- | 6 | ----- | ----- | ----- | ----- | ----- | 6 | 72.3 |
| | FA Bn, 155-mm Gun, Self-Propelled | | | | | | | | | | | | |
| 12 | Gun Btry Am Secs (all) | ----- | [2](12) | 6 | ----- | ----- | ----- | ----- | 6 | ----- | ----- | ----- | 15.0 |
| 13 | Total Bn | ----- | ----- | 6 | ----- | ----- | ----- | ----- | 6 | ----- | ----- | ----- | 15.0 |
| | FA Bn, 8-inch How, Truck Drawn | | | | | | | | | | | | |
| 14 | How Btry Am Secs (all) | ----- | ----- | ----- | 6 | ----- | ----- | ----- | ----- | ----- | ----- | 6 | 105.0 |
| 15 | Total Bn | ----- | ----- | ----- | 6 | ----- | ----- | ----- | ----- | ----- | ----- | 6 | 105.0 |
| | FA Bn, 8-inch How, Tractor Drawn | | | | | | | | | | | | |
| 16 | How Btry Am Secs (all) | ----- | ----- | 3 | ----- | 6 | ----- | ----- | 3 | ----- | ----- | 6 | 84.7 |
| 17 | Total Bn | ----- | ----- | 3 | ----- | 6 | ----- | ----- | 3 | ----- | ----- | 6 | 84.7 |
| | FA Bn, 240-mm How, Truck Drawn | | | | | | | | | | | | |
| 18 | How Btry Am Secs (all) | ----- | ----- | ----- | 6 | ----- | ----- | ----- | ----- | ----- | ----- | 6 | 105.0 |
| 19 | Total Bn | ----- | ----- | ----- | 6 | ----- | ----- | ----- | ----- | ----- | ----- | 6 | 105.0 |
| | FA Bn, 240-mm How, Tractor Drawn Fa Bn, 8-inch Gun, Tractor Drawn | | | | | | | | | | | | |
| 20 | Gun or How Btry Am Secs (all) | ----- | ----- | 3 | ----- | [4] | ----- | 6 | 3 | ----- | ----- | 6 | ----- |
| 21 | Total Bn | ----- | ----- | 3 | ----- | [4] | ----- | 6 | 3 | ----- | ----- | 6 | ----- |

[1] Prime movers not included since they are not normally used for resupply.
[2] Accompanies the 155-mm SP gun and carries 155-mm Am—but is not a part of the Btry Am Sec.
[3] For FA Bn, 105-mm How, truck-drawn, and FA Bn 155-mm How tractor-drawn, see Par 334.
[4] Information not available.

[1] Prime movers not included since they are not normally used for resupply.
[2] Accompanies the 155-mm SP gun and carries 155-mm Am—but is not a part of the Btry Am Sec.
[3] For FA Bn, 105-mm How, truck-drawn, and FA Bn 155-mm How tractor-drawn, see Par 334.
[4] Information not available.

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## Ammunition Supply Data—Tank Destroyer Units
(FM 101-10, 12 Oct '44; Chart Corrected to 10 July '44)

| 1 | Type of ammunition | Unit of fire | | Prescribed load | | |
|---|---|---|---|---|---|---|
| | | Rounds | Tons | Rounds | Tons | Units of fire |
| | | TD BATTALION (SP) | | | | |
| 2 | .30 caliber, carbine | 17,580 | 0.29 | 83,930 | 1.38 | 4.78 |
| 3 | .30 caliber, MG and rifle | 102,450 | 4.17 | 131,200 | 5.25 | 1.28 |
| 4 | .45 caliber, pistol | 790 | 0.02 | 1,638 | 0.05 | 2.50 |
| 5 | .50 caliber, machine gun | 40,000 | 6.41 | 107,700 | 17.26 | 2.69 |
| 6 | 37-mm gun, AT | 600 | 1.47 | 600 | 1.48 | 1.00 |
| 7 | 2.36" rocket | 372 | 1.26 | 1,240 | 4.22 | 3.35 |
| 8 | 76-mm gun, AT | 2,700 | 52.40 | 2,844 | 55.46 | 1.06 |
| 9 | 81-mm Mortar, M1 | 300 | 2.09 | 90 | 0.70 | 0.30 |
| 10 | Grenade, rifle, AT | 252 | 0.34 | 207 | 0.28 | 0.82 |
| 11 | Pyrotechnics | 450 | 0.20 | 810 | 0.35 | 1.75 |
| 12 | Signals, ground | 150 | 0.10 | 540 | 0.35 | 3.50 |
| 13 | Total | | 68.75 | | 86.78 | |
| | | TD BATTALION (TOWED) | | | | |
| 14 | .30 caliber, carbine | 21,600 | 0.36 | 100,500 | 1.73 | 4.77 |
| 15 | .30 caliber, MG and rifle | 125,550 | 5.02 | 188,060 | 7.61 | 1.59 |
| 16 | .45 caliber, pistol and SMG | 59,630 | 1.46 | 144,303 | 3.97 | 2.32 |
| 17 | .50 caliber, machine gun | 17,500 | 3.17 | 66,500 | 12.05 | 3.80 |
| 18 | 37-mm gun, AT | 400 | 1.00 | 400 | 1.00 | 1.00 |
| 19 | 2.36" rocket | 426 | 1.44 | 1,410 | 4.80 | 3.32 |
| 20 | 3" gun, AT | 2,700 | 52.39 | 2,440 | 47.35 | 0.90 |
| 21 | Grenade, rifle, AT | 702 | 0.94 | 106 | 0.14 | 0.14 |
| 22 | Pyrotechnics | 360 | 0.15 | 1,296 | 0.56 | 3.73 |
| 23 | Signals, ground | 170 | 0.07 | 612 | 0.26 | 3.71 |
| 24 | Total | | 66.00 | | 79.47 | |

### LOGISTICAL FACTORS USED IN ORDNANCE PLANNING IN A THEATER OF OPERATIONS

| | |
|---|---|
| **CLASS II SUPPLIES** | |
| T/E major items shipped in bulk, ship tons per 1,000 men | 1,679 |
| T/E major items shipped to accompany troops (vehicles shipped in bulk), ship tons per 1,000 men | 1,711 |
| T/E major items shipped to accompany troops, ship tons per 1,000 men | 3,066 |
| *Maintenance and reserve in UK, lb per man per day, total | 2 |
| *Maintenance and reserve on Continent, lb per man per day, total | 3.3 |
| *Maintenance and reserve, boxed items only, lb per man per day | 0.8 |
| Maintenance per man per day, armored division, lb | 5.96 |
| Maintenance per man per day, infantry division, lb | 1.99 |
| Maintenance per man per day, airborne division lb | 1.07 |
| Major-item conversion factor, long tons to ship tons | 2.87 |
| Boxed conversion factor, long tons to ship tons | 2.68 |
| Gross-covered-storage space, bin and bulk.....1 sq ft per man, plus 0.0235 sq ft per man per day of supply | |
| Average practicable height of stocks, boxed items, ft | 5 |
| Average floor loading, boxed items, lb per sq ft | 100 |
| Conversion factor, covered storage, gross area to net area | 1.75 |
| Conversion factor, total covered space to open hardstanding | 1.00 |
| Net storage space per long ton, sq ft | 22 |
| Net storage space per ship ton, sq ft | 8.22 |
| Hardstanding for artillery and combat vehicles, sq ft per piece | 350 |
| **CLASS V GROUND FORCE ONLY** | |
| Expenditure per divisional slice, long tons per month | 7,500 |
| Unit of fire per divisional slice, long tons | 1,000 |
| Conversion factor, long tons to ship tons | 1.1 |
| **Expenditure per man per day, armored division, lb | 3.24 |
| **Expenditure per man per day, infantry division, lb | 1.83 |
| **Expenditure per man per day, airborne division, lb | 1.64 |
| Storage capacity per mile of road, long tons | 2,000 |
| **MAINTENANCE SHOPS** | |
| Covered space per MAM Co, sq ft | 10,000 |
| Covered space per HAM, HM (FA), HM (Tk), and MM (AA) Co, sq ft | 15,000 |
| ***Covered space per Base Arm Maint and Base Auto Maint Bn, sq ft | 54,000 |
| Covered space per Tire Repair Co, sq ft | 9,000 |
| **VEHICLE PARKS** | |
| Area per 2,500 vehicles, acres | 640 |
| Hardstanding per park of 2,500-vehicle capacity, sq ft | 110,000 |
| Covered space per park, office, shop, and supply, sq ft | 12,360 |
| **ASSEMBLY POINTS** | |
| Covered space per plant (1 MVA Co), sq ft | 36,000 |
| Open-storage hardstanding per 1,500 cases, sq yd | 150,000 |

NOTE: Large, balanced forces, including air force, are assumed unless otherwise stated.

* 76 percent of this tonnage can be moved from ports under its own power

** Based on using 1 Theater unit of fire in 2.5 days.

*** Increases to 81,000 sq ft approximately 60 days after opening.

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## Characteristics of Infantry Weapons (FM 101-10, 12 Oct '44; Chart Corrected to 10 July '44)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|
| Weapon | Weight in firing position (pounds) | Method of operation | Type of feed | Maximum rate of fire (rounds per minute) [1] | Sustained rate of fire (rounds per minute) [2] | Projectiles: Maximum range (yards) | Projectiles: Maximum effective range (yards) | Projectiles: Effective radius of burst—fragmentation (yards) |
| Grenade, AT | 3.10 | | | 4 | | 220 [3] | 220 [3] | 10 |
| Grenade, hand, fragmentation, Mk II | 1.31 | [4] | | | | 50 | 50 | [5] |
| Gun, machine, M1917, cal .30 (Hv) w/pintle | 33.50 | Recoil, automatic | 250-round fabric belt | 400–525 | 125 | 3,500 [6]<br>5,500 [7] | 1,800<br>3,000 [6 8]<br>4,000 [7 8] | |
| Gun and tripod M1917A1, with water | 91.75 | | | | | | | |
| Gun and tripod, without water | 84.50 | | | | | | | |
| Tripod, M1917A1 | 51.00 | | | | | | | |
| Chest with filled belt | 20.50 | | | | | | | |
| Spare parts chest with contents | 17.30 | | | | | | | |
| Chest 5.60 | | | | | | | | |
| Spare parts 6.59 | | | | | | | | |
| Accessories 5.11 | | | | | | | | |
| Water chest, full | 22.50 | | | | | | | |
| Water chest, empty | 9.00 | | | | | | | |
| Gun, machine, M1919A4, cal .30 (light) [10] | 42.25 | Recoil, automatic | 100, 150, 250-round fabric belt | 400–550 | 60 | 3,500 [6]<br>5,500 [7] | 1,800<br>3,000 [6 8 9]<br>4,000 [7 8 9] | |
| Ammunition chest, wooden (empty) | 5.50 | | | | | | | |
| Ammunition chest, metal (empty) approx | 4.00 | | | | | | | |
| Spare parts chest with contents | 20.64 | | | | | | | |
| Gun, machine, M-2, cal .50 (HB, flexible) | ---------- | Recoil, semi-automatic & automatic | Metallic disintegrating link belt | 400–500 | 125 | 7,200 | 1,800 | |
| Gun with tripod M-3, 45" barrel | 129.00 | | | | | | | |
| Gun with tripod M-3, 36" barrel | 124.00 | | | | | | | |
| Accessories and spare parts chest | 32.00 | | | | | | | |
| Ammunition chest, empty | 4.73 | | | | | | | |
| Ammunition chest, 100 cart AP (SNLA39) | 35.53 | | | | | | | |
| Carbine, cal .30, M-1 | 5.00 | Gas, semi-automatic | 15-round magazine | 30–40 | 25 | 2,000 | 300 | |
| With magazine, loaded and sling | 5.80 | | | | | | | |
| Magazine, loaded, 15 rounds | 0.57 | | | | | | | |
| Magazine, unloaded | 0.17 | | | | | | | |
| Gun, 57-mm, M-1 | ---------- | Manual Single Shot | Hand, breech loading | 10–15 | 6–8 | 10,260 | 800 [11] | 12 |
| Gun and carriage, M-1, M-1A1, or M-1A2 | 2,700 | | | | | | | |
| Howitzer, 105-mm, M3 | 3,800 | Manual Single shot | Hand, breech loading | 4 | 2 | 7,240 | 6,150 | Lateral–50<br>Range–15 |



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**Characteristics of Infantry Weapons** (Continued).

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|
| Weapon | Weight in firing position (pounds) | Method of operation | Type of feed | Maximum rate of fire (rounds per minute) [1] | Sustained rate of fire (rounds per minute) [2] | Projectiles: Maximum range (yards) | Projectiles: Maximum effective range (yards) | Projectiles: Effective radius of burst—fragmentation (yards) |
| Mortar, 60-mm, M-2 | 42.00 | Manual, single shot | Hand, muzzle loading | 30-35 | 18 | 1,985 | [12] | 17 |
| Mortar, 81-mm, M-1, and mount | 136.00 | Manual, single shot | Hand, muzzle loading | 30-35 | 18 | 3,290 [14]<br>2,560 [15]<br>2,430 [16] | [13] | 25 |
| Pistol, automatic, cal .45 | | Recoil, semi-automatic | 7-round box magazine | 21-28 | 10 | 1,600 | 50 | |
| Pistol with loaded magazine | 2.80 | | | | | | | |
| Pistol with empty magazine | 2.44 | | | | | | | |
| Rifle, automatic, cal .30, Browning, M1918, A2 | | Gas, automatic | 20-round box magazine | 350-550 [17] | 40-60 | 3,500 [6] | 600 [6] | |
| Rifle with sling | 20.00 | | | | | | | |
| Magazine filled | 1.43 | | | | | | | |
| Magazine, empty | 7 ounces | | | | | | | |
| Rifle, U.S., cal .30, M1903A4 | | Manual | 5-round clip | 10-15 | 10 | 3,500 [6] | 600 [6] | |
| Rifle without bayonet | 9.69 | | | | | | | |
| Rifle with bayonet | 10.69 | | | | | | | |
| Rifle, U.S., cal .30 M-1 | | Gas, semi-automatic | 8-round clip | 16-32 | 16 | 3,500 [6] | 600 [6] | |
| Rifle without bayonet | 9.00 | | | | | | | |
| Rifle with bayonet | 10.00 | | | | | | | |
| Rocket, AT, 2.36" | 3.50 | | | 4 | 4 | 650 | 300 | 10-15 [18] |

[1] For other than full automatic weapons, proficiency of personnel is a controlling factor.
[2] A variable factor, the time of endurance of which is limited by construction, heating, and other conditions influencing prolonged performance.
[3] The grenade is effective at any range up to 220 yards. The maximum accurate range when fired as a flat trajectory weapon is 75 yards.
[4] These grenades may be fired with launcher attached to rifle, M-1903, M-1, or carbine, and grenade projection adapter, M-1. Ranges up to 180 yards with M-1903 or M-1 rifle.
[5] Casualty effect dependent on confinement of the area.
[6] M-1906, M2 ball, M2 armor-piercing ammunition, and M1 tracer.
[7] M1 ammunition.
[8] Indirect fire.
[9] Gun not well suited to indirect fire.
[10] Machine gun, cal. 30, M1919A4, tank, has same ballistic qualities.
[11] Against armored vehicles.
[12] No fragmentation—used for demolition purposes only.
[13] Within limits of maximum range. Observation is a controlling factor.
[14] Light shell. (HE) Superquick fuze.
[15] Heavy shell. (HE) Delayed action fuze.
[16] Chemical (smoke) shell (WP) superquick fuze.
[17] Automatic.
[18] Effective against any known medium or light tank.



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**Characteristics of Field Artillery Weapons** (FM 101-10, 12 Oct '44, Chart Corrected to 10 July '44)

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| 1 | Type and caliber (model designation refers to carriage) | Organic to | | Weight of piece and carriage, pounds |
| | | Unit | T/O & E | Travelling position | Firing position |
| 2 | Howitzer, 75-mm, M-1 (pack) | FA Bn, 75-mm Pk How<br>FA Bn, 75-mm Pk How, Trk Dr<br>Parachute FA Bn, 75-mm Pk How<br>Glider FA Bn, 75-mm Pk How | 6-155<br>6-175<br>6-215<br>6-225 | 1,392 | 1,26[illegible] |
| 3 | Howitzer 75-mm, M3A1, M3A2 (field)[3] | FA Bn, 75-mm, Field How, Horse | 6-115 | [3] 2,930 | 2,16[illegible] |
| 4 | Howitzer 105-mm, M2A2 | FA Bn, Mtz, 105-mm How,<br>Trk Dr<br>Tr Dr | <br>6-25<br>6-325 | 4,900 | 4,90[illegible] |
| 5 | Howitzer 105-mm, M7 | Armed FA Bn | 6-165 | [5] 46,500 | [5] 46,50[illegible] |
| 6 | Gun, 4.5 inch M1A1 | FA Bn, 4.5-inch Gun,<br>Trk Dr<br>Tr Dr | <br>6-35<br>6-335 | 12,500 | 12,54[illegible] |
| 7 | Howitzer 155-mm, M1A1 | FA Bn, Mtz, 155-mm How,<br>Trk Dr<br>Tr Dr | <br>6-35<br>6-335 | 12,000 | 11,9[illegible] |
| 8 | Gun, 155-mm M1A1 [4] | FA Bn, Mtz, 155-mm Gun<br>Trk Dr<br>Tr Dr | <br>6-55<br>6-355 | [6] 29,900 | 27,70[illegible] |
| 9 | Gun, 155-mm, M12 | FA Bn, Mtz, 155-mm Gun SP | 6-125 | 55,400 | 55,40[illegible] |
| 10 | Howitzer, 8-inch, M1A1 [4] | FA Bn, Mtz 8-inch How<br>Trk Dr<br>Tr Dr | <br>6-65<br>6-365 | 28,000 | 30,2[illegible] |
| 11 | Gun, 8-inch M2 | FA Bn, 8-inch Gun,<br>Trac Dr | <br>6-395 | Gun ____50,400<br>Carr____48,840 | 89,5[illegible] |
| 12 | Howitzer, 240-mm, M1918A2 | FA Bn, 240-mm How, Mtz | 6-145 | How____30,000<br>Carr____25,000 | 41,3[illegible]<br>41,3[illegible] |
| 13 | Howitzer 240-mm, M1 | FA Bn, 240-mm How, Mtz, Tr Dr | 6-395 | How____44,300<br>Carr____47,200 | 64,7[illegible] |

[1] Proficiency of personnel is a controlling factor.
[2] Six loads for pack mules. Average total weight on mule, 342 lbs. Maximum weight on mule, 342 lbs. Maximum pay load, 248 lbs.

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**Characteristics of Field Artillery Weapons** (Continued):

| 1 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|
| | | | | | Projectile | | | |
| | Piece Transportation | Time to emplace (minutes) | Maximum rate of fire—(rounds per minute)[1] | Sustained rate of fire—(rounds per minute) | Maximum range (yards) | Maximum effective range (yards) | Effective area of burst (yards) | |
| | | | | | | | Lateral | Range |
| 2 | 6 Pk mules [2]<br>Trk, ¼-ton<br>Trk, ¼-ton | 3 | 6 | 3 | 9,610 | 8,165 | 30 | 10 |
| 3 | 6 H team | 3 | 6 | 3 | 9,610 | 8,165 | 30 | 10 |
| 4 | Trk, 2½-ton<br>Trac, 13-ton M-5 | 3 | 4 | 2 | 12,205 | 10,374 | 50 | 15 |
| 5 | Self-propelled | | 4 | 2 | 12,205 | 10,374 | 50 | 15 |
| 6 | Trk, 4-ton<br>Trac, 13-ton M-5 | 5 | 4 | 1 | 21,125 | 17,955 | | |
| 7 | Trk, 4-ton<br>Trac, 13-ton M-5 | 5 | 2 | 1 | 16,355 | 13,895 | 60 | 18 |
| 8 | Trac, 18-ton, M4 | 20-360 | 3 | 1 | 25,715 | 21,860 | 60 | 18 |
| 9 | Self-propelled | | 3 | 1 | 20,100 | 17,085 | 60 | 18 |
| 10 | Trac, 18-ton, M-4<br>Trk, 7½-ton | 30-360 | 1 | ½ | 18,510 | 15,430 | | |
| 11 | Trac, 38-ton, M6 | 120-360 | ½ | ¼ | 35,400 | | | |
| 12 | Trac, 38-ton, M6 | 120-360 | ½ | ¼ | 16,390 | 13,390 | | |
| 13 | Trac, 38-ton, M6 | 120-360 | ½ | ¼ | 25,255 | 21,470 | | |

[3] Includes 770 lbs. limber.
[4] Used with limber, heavy carriage, M2.
[5] Weight fully equipped.
[6] Includes weight of heavy carriage limber M2, 2,000 lbs.

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**Characteristics of Antiaircraft Artillery Weapons (Mobile and Self-Propelled):**
*a. Basic Data:*
(FM 101-10, 12 Oct '44; Chart Corrected to 10 July '44)

| 1 | Type and caliber (model designation refers to carriage) | 2 Weight of piece and carriage (pounds): Traveling position | 3 Weight of piece and carriage (pounds): Firing position | 4 Piece Transportation | 5 Average time to emplace (minutes)[4] |
|---|---|---|---|---|---|
| 2 | Gun, 40-mm, M2 | 5,549 | [6] | Trk, 2½-ton | [7] 3 |
| 3 | Gun, 90-mm, M1 | 19,000 | [6] | Trk, 6-ton or Trac, 18-ton | 20 |
| 4 | Gun, 90-mm, M2 | 32,300 | 25,850 | Trk, 6-ton, or Trac, 18-ton | 20 |
| 5 | Gun, 4.7-inch, M1 | 61,500 | [6] | Trac, 30-ton | 40 |
| 6 | Gun, machine, cal. .50, M2 | 485 | 485 | Trk, 2½-ton | [8] 3 |
| 7 | Multiple, MG mount, cal. .50, M51 (4 guns) | 7,488 | 7,488 | Tlr towed by Trk, 2½-ton | [9] 3 |
| 8 | SP Auto Wpns unit M15 1-37-mm gun 2-cal. .50 MG | 20,100 | 20,100 | Self-propelled (half-track) | None |
| 9 | SP MG unit M16, cal. .50 (4 guns) | 19,800 | 19,800 | Self-propelled (half-track) | None |

[1] For non-automatic weapons, proficiency of personnel is a controlling factor.
[2] With jacks—11°.
[3] 9 second fuze limit.
[4] Time required to prepare gun for action—from traveling position. Time for digging in, camouflage, etc., to be added.

| 1 | 6 Elevation (degrees): Minimum | 7 Elevation (degrees): Maximum | 8 Maximum rate of fire (rounds per minute)[1] | 9 Range (yards): Horizontal: Maximum | 10 Range (yards): Horizontal: 30 sec. fuze limit | 11 Range (yards): Vertical: Maximum | 12 Range (yards): Vertical: 30 sec. fuze limit |
|---|---|---|---|---|---|---|---|
| 2 | —6 [2] | +90 | 120 | 10,850 | [3] 4,315 | [3] 7,625 | [3] 4,315 |
| 3 | —5 | +80 | 18 | 19,980 | 12,425 | 13,170 | 11,625 |
| 4 | —10 | +80 | 25 | 19,980 | 12,425 | 13,170 | 11,625 |
| 5 | —5 | +80 | 12 | 28,250 | 16,400 | 20,600 | 16,500 |
| 6 | —15 | +69 | 500–650 | 7,125 | | ([5]) | |
| 7 | —10 | +90 | 2,000 to 2,680 | 7,125 | | ([5]) | |
| 8 | ([5]) | ([5]) | 37-mm=120 .50 Cal.= 1,000–1,300 | 7,125 | | ([5]) | |
| 9 | —10 | +90 | 2,000 to 2,600 | 7,125 | | ([5]) | |

[5] Gun may be fired from truck, or removed from truck without disassembling from cradle or tripod.
[6] Information not available.
[7] To emplace with director, 15 to 30 minutes.
[8] Range of cal. .50 approximately same as shown in line 6 for M2.
[9] Gun can be fired from traveling position.

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*b. Antiaircraft Artillery Automatic Weapons Ranges:*

| M7 sight Ft. | Maximum Deterrent Horizontal Range (Yds.) [1] | | | Maximum Killing Horizontal Range (Yds.) [1] | | | Effective Killing Horizontal Range (Yds.) [1] | | |
|---|---|---|---|---|---|---|---|---|---|
| | 40-mm director control | 40-mm M7 sight control | .50 cal. MG [3] | 40-mm director control | 40-mm M7 sight control | .50 cal. MG | 40-mm director [2] | 40-mm M7 sight control | .50 cal. MG |
| 1000 | 3500 | 3500 | 1800 | 2500 | 1500 | 900 | 1500–600 [4] | 1000–400 [4] | 500–0 |

[1] Horizontal range in yards decreases as altitude increases and vice versa.
[2] Average hit expectancy or number of hits expected per 100 Rds fired 4%.
[3] Tracer burn out range. The extent of deterrent effect of .50 cal. tracer is questionable.
[4] Minimum range limited to max tracking rate. For targets diving directly at the gun, min range would be limited.

*c. Perforating Characteristics of the Projectiles:*

| Weapon | Projectile, Type and Weight (lbs.) | Muzzle Velocity (ft./sec.) | Perforation at 1,000 yds. from 1 round | |
|---|---|---|---|---|
| | | | Concrete (5,000 lb./sq. in.) | Homogeneous Armor Plate |
| 90-mm M1 and M2 | AP-M77 23.4 | 2,700 | 3.8 ft. | 5.5 in. |

*d. Cumulative Effect of Weapons on Concrete:*

| Weapon | Type of Ammunition | Simulated Range, yds. | Number of rounds to perforate concrete pillbox | | Remarks |
|---|---|---|---|---|---|
| | | | Wall thickness | | |
| | | | 5 feet | 7 feet | |
| 40-mm gun, M1 | AP M81 | 1,000 | 60–80 | | 84 rounds perforated 5-foot wall |
| 90-mm gun, M1 | AP M77 | 1,000 | 3–4 | 8–10 | 9th round perforated 7-foot wall |

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## Characteristics of Chemical Weapons (FM 101-10, 12 Oct '44; Chart Corrected to 10 July '44)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|
| 1 Weapon | Weight (pounds) | Transportation | Time to emplace (minutes) | | Maximum rate of fire (rounds per minute) | Sustained rate of fire (rounds per minute) | Projectile | |
| | | | Day | Night | | | Maximum effective range (yards) | Effective radius of burst (yards) |
| 2 4.2-inch Cml mortar, M2 | | ¼-ton Trk & Tlr Hand cart may be used | 5 | 10 | 20 | 5 | 4,400 [M6 Powder] | 40 (WP Shell) |
| Barrel | 91 | | | | | | | |
| Baseplate | 150 | | | | | | | |
| Standard | 53 | | | | | | | |
| Hand cart, loaded with Cml mortar, complete | 491 | | | | | | | |
| Hand cart, loaded with 10 rounds shell (boxes) | 479 | | | | | | | |
| 3 Rocket projector, 24 rail, 7.2 inch [1] | 1,245 | Trk, 2½-ton | 1 | 2 | ⅓ second/rocket 8 seconds/24 rockets Individual fire or ripple fire. Reload time, 1½ min | | 3,500 | 24 shell disperse over area 300 x 400 yds |

[1] Experimental weapon.



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## Data on Chemical Munitions (FM 101-10, 12 Oct '44; Chart Corrected to 10 July '44)

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| Munition | Agent and weight of filling (pounds unless otherwise indicated) | Weight of filled munition complete (pounds unless otherwise indicated) | Approximate time for agent to burn or evaporate at point of release | Marking and color | Chemical efficiency (percent) [1] |
| Grenade, frangible, M-1 | 3 types, approx. 1 lb. | 1.50 av. | 30 seconds to 15 minutes | Varies with filling | 67 |
| Grenade, hand, irritant, CN-DM, M-6 | Mixture of CN-DM-----1 | 2.0 | 1 minute | CN-DM Gas; 1 band, red | 50 |
| Grenade, incendiary, M-14 -- | TH------1.65 | 2.62 | 2 minutes | TH Incend; 1 band, purple | 63 |
| Grenade, hand, smoke, WP, M-15 | WP---------1 | 1.95 | 1 minute | WP Smoke; 1 band, yellow | 51 |
| Grenade, Smoke Colored, M16 (6 colors) [4] | 0.75 | 2.0 | 2 minutes 20 seconds | 1 band, yellow. Lettering and color of top indicate color | 38 |
| Grenade, Smoke Colored, M18 (6 colors) [4] | | Same as M16 except: Burns in 1 minute and color more pronounced M16 obsolete—no longer manufactured. May be seen in field. | | | |
| Candle, gas, irritant, DM, M-1 | DM---------2 | 9 | 2 minutes | DM Gas; 1 band, red | 22 |
| Land mine, Cml (1-gallon can) | H--------10.5 | 13.0 | 10 days | H Gas; 2 bands, green | 85 |
| Pot, smoke, HC, M-1 | HC------12.5 | 14.3 | 5 to 8 minutes | HC Smoke; 1 band, yellow | 87 |
| Shell, 4.2-inch chemical mortar | WP-------7.5<br>H---------6.5<br>HE-------6.8 | WP--------25.5<br>H----------24.5<br>HE--------26.0 | 2 to 3 minutes<br>10 days | WP Smoke; 1 band, yellow<br>H Gas; 2 bands, green | WP----------29<br>H----------26<br>HE----------26 |
| Shell, 81-mm mortar, Cml. | WP-------4.1 | WP--------11.4 | 1 minute | WP Smoke; 1 band, yellow | 36 |
| Shell, 75-mm howitzer, Cml. | H--------1.04<br>WP------1.34 | H---------14.94<br>WP-------15.25 | 1 week<br>30 seconds | H Gas; 2 bands, green<br>WP Smoke, 1 band, yellow | H----------7.0<br>WP---------8.8 |
| Shell, 75-mm gun, Cml. | WP------1.81<br>H--------1.33 | WP-------12.77<br>H---------12.31 | Same as 75-mm Howitzer | Same as above | WP--------10.8<br>H----------10.0 |
| Shell, 105-mm howitzer, Cml. | H--------3.17<br>WP------4.06 | 33.8<br>34.7 | 1 week<br>1 minute | Same as above | H----------9.4<br>WP--------11.7 |



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## Data on Chemical Munitions (Continued):

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| | Munition | Agent and weight of filling (pounds unless otherwise indicated) | Weight of filled munition complete (pounds unless otherwise indicated | Approximate time for agent to burn or evaporate at point of release [2] | Marking and color | Chemical efficiency (percent) [1] |
| 16 | Shell, 155-mm gun, Cml. | H.....11.5 | 94.6 | 10 days | H Gas; 2 bands, green | H.....12.2 |
| 17 | Shell, 155-mm howitzer, Cml. | H.....11.5<br>WP.....15.3 | 94.5<br>98.0 | H.....10 days<br>WP.....2 minutes | H Gas; 2 bands, green<br>WP Smoke, 1 band, yellow | H.....12.2<br>WP.....15.6 |
| 18 | Tanks, airplane, chemical spray:<br>M-10, non-pressure | Inbd. Outbd.<br>FS.....432 305<br>L.....432 305 | Inbd. Outbd.<br>500 373 | FS....5 to 10 secs.<br>L.....4 to 6 hours | | Inbd Outbd<br>86.4 81.8 |
| 19 | M-33 non-pressure | FS or L.....1100 | 1,280 | FS.....5 to 10 sec.<br>L.....4 to 6 hours | | 86.7 |
| 20 | Bomb, chemical:<br>100-pound, M-47 | WP.....100<br>H.....71 | 120<br>102 | 8 to 10 minutes<br>1 week | WP Smoke, 1 band, yellow<br>H Gas; 2 bands, green | 83<br>69 |
| 21 | Bomb, Smoke:<br>10-pound, M-67 | | 10 | 10 minutes | 1 band, yellow | 80 |
| 22 | Bombs, Incendiary:<br>Magnesium body:<br>AN-M-50<br>AN-M-52 | <br>TH.....10 oz.<br>TH..... 8 oz. | <br>4<br>2 | <br>9 to 12 minutes<br>7 to 10 minutes | AN-M-50 (52) or AN-M-50 (52)X, 1 band, purple [3] | |
| 23 | Steel body:<br>AN-M-54 | TH...1 lb. 9 oz. | 4 | 1½ minutes | AN-M 54 or AN-M-54X 1 band, purple [3] | |
| 24 | 100-pound, M-47: | IM.....50 lbs.<br>NP.....50 lbs. | 70 | 10 to 20 minutes | NP, 1 band, purple<br>IM, 1 band, purple | |
| 25 | 6-pound, M-69: | IM.....2.6 lbs.<br>NP.....2.6 lbs. | 6.2 | 5 minutes | AN-M69, 1 band, purple | |

[1] Ratio filling to total weight.

[2] Variable depending on amount of agent released, type of agent, terrain, and meteorological conditions.

[3] X after designation indicates explosive charge. Small incendiaries assembled and dropped in clusters of varying sizes.

[4] Colors: Red, yellow, green, violet. For air-ground and other signalling.



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**Chemical Ammunition Requirements** (FM 101-10, 12 Oct '44; Chart Corrected to 10 July '44)

*a. Gas Shell:*

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| 1 | Agent | H, L or HL [2] | | | | CG [2] |
| | Weapon | 75-mm gun or How | 105-mm howitzer | 155-mm gun & How | 4.2-inch mortar | 4.2-inch mortar |
| 2 | Rounds per target (point target) [1] | 540 | 232 | 64 | 112 | 160 |
| 3 | Rounds per square 100 ×100 yards (area target) | 270 | 116 | 32 | 56 | 80 |
| 4 | Rounds per circle 200 yards diameter (area target) | 1080 | 464 | 128 | 224 | 320 |

[1] Minimum depth in line of fire 200 yards (observed fire).
[2] Below 50 degrees F. increase H 25% . On wooded targets use 50% of the quantities given. Do not fire below H 32 degrees F. Use L or HL.
[3] Fired in not over 2 minutes.

*b. Smoke Shell* (1) Rounds per 100 yards per minute for combined screening and casualty effects.

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| | Wind direction | Following 6 o'clock | Head 12 o'clock | Flank 3 or 9 o'clock | Quartering |
| 2 | 81-mm mortar | 2.5 | 2 | 1.0 | 2 |
| 3 | 4.2-inch chemical mortar | 1.25 | 1 | .5 | 1 |
| 4 | 75-mm gun and howitzer | 12 | 10 | 4 | 8 |
| 5 | 105-mm howitzer | 9 | 7 | 1.5 | 6 |
| 6 | 155-mm howitzer | 3 | 2 | .5 | 2 |

**Common Caliber (Diameter of Bore):**

| 1 Millimeters | 2 Inches | 3 Millimeters | 4 Inches |
|---|---|---|---|
| 6.0 | 0.236 | 105.0 | 4.134 |
| 7.0 | 0.276 | 106.678 | 4.200 |
| 8.0 | 0.315 | 114.298 | 4.500 |
| 9.0 | 0.354 | 120.0 | 4.725 |
| 11.0 | 0.433 | 126.998 | 5.000[6] |
| 12.0 | 0.472 | 150.0 | 5.906 |
| 13.0 | 0.512 | 152.397 | 6.000 |
| 20.0 | 0.787 | 155.0 | 6.103 |
| 25.0 | 0.984 | 180.0 | 7.087 |
| 37.0[1] | 1.457 | 203.196 | 8.000 |
| 40.0 | 1.575 | 210.0 | 8.268 |
| 47.0[2] | 1.850 | 220.0 | 8.662 |
| 57.0[3] | 2.244 | 233.676 | 9.200 |
| 60.0 | 2.362 | 240.0 | 9.449 |
| 65.0 | 2.559 | 320.0 | 12.599 |
| 75.0 | 2.953 | 420.0 | 16.536 |
| 76.0 | 2.992 | | |
| 76.199 | 3.000[4] | | |
| 77.0 | 3.032 | | |
| 81.0 | 3.189 | | |
| 83.819 | 3.300[5] | | |
| 88.0 | 3.465 | | |
| 90.0 | 3.543 | | |
| 93.977 | 3.700 | | |
| 100.0 | 3.937 | | |

[1] Also called 1-pounder.
[2] Also called 3-pounder.
[3] Also called 6-pounder.
[4] Also called 13-pounder.
[5] Also called 18-pounder.
[6] Also called 60-pounder.

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**Fordable Depth of Water:** ①

| *Type unit* | *Depth of water (feet)* |
|---|---|
| Infantry | 3½ |
| Horse cavalry | 4½ |
| Artillery (horse-drawn) | 3 |
| Wagons | 3 |
| Trucks and truck-drawn artillery | 2 |
| Light tanks | 1-3 |
| Medium tanks | 2-4 |
| Heavy tanks | 4-6 |

① Moderate current; hard bottom.

**Day of Supply.** (Par 1 FM 100-10) The estimated average daily expenditure of various items of supply in campaign.

| Item | Pounds per Man per Day | Tons per Man per Month | Conversion Factor Short Tons to Ship Tons [1] | Ship Tons per Man per Month | Ship Tons per Man per Month With 15% Stowage |
|---|---|---|---|---|---|
| Class I | | | | | |
| Rations | 6.22 | 0.0933 | 1.3 | 0.121 | 0.140 |
| Class II | | | | | |
| QM clothing and equipage | 0.84 | 0.0126 | 2.0 | 0.025 | 0.029 |
| QM general supplies | 0.32 | 0.0048 | 2.0 | 0.010 | 0.011 |
| Vehicle replacement | 0.62 | 0.0093 | 5.0 | 0.047 | 0.053 |
| Engineer | 0.37 | 0.0055 | 2.0 | 0.011 | 0.013 |
| Ordnance | 0.30 | 0.0045 | 2.5 | 0.011 | 0.013 |
| Chemical | 0.34 | 0.0051 | 2.0 | 0.010 | 0.012 |
| Signal | 0.32 | 0.0048 | 2.5 | 0.012 | 0.014 |
| Medical | 0.20 | 0.0030 | [3] | [3] | [3] |
| Total Class II | 3.31 | 0.0496 | ------ | 0.126 | 0.145 |
| Class III | | | | | |
| Gas, oil, grease (less AC) | 8.26 | 0.1239 | 1.5 | 0.186 | 0.214 |
| AC fuel and lubricants [2] | 13.38 | 0.2007 | 1.5 | 0.301 | 0.346 |
| Subtotal Class III | 21.64 | 0.3246 | ------ | 0.487 | 0.560 |
| Solid fuel for arctic zone* | 17.00 | 0.2550 | 2.0 | 0.510 | 0.587 |
| Solid fuel for temperate zone* | 8.50 | 0.1275 | 2.0 | 0.255 | 0.293 |
| *50% coal and coke by volume. | | | | | |
| Class IV | | | | | |
| Medical | 0.27 | 0.0041 | 2.9 | 0.012 | 0.014 |
| Motor Maintenance | 0.18 | 0.0027 | 1.0 | 0.003 | 0.003 |
| QM sales items | 0.27 | 0.0041 | 2.0 | 0.008 | 0.009 |
| AC supply and replacement | 2.84 | 0.0426 | 4.0 | 0.170 | 0.196 |
| Average use of Engr. Const. Material | 11.90 | 0.1785 | 1.5 | 0.268 | 0.308 |
| Total Class IV | 15.46 | 0.2320 | ------ | 0.461 | 0.530 |
| Class V | | | | | |
| Ammunition (less AC) | 5.17 | 0.0775 | 0.81 | 0.063 | 0.072 |
| AC ammunition | 4.41 | 0.0661 | 0.67 | 0.044 | 0.051 |
| Total Class V | 9.58 | 0.1436 | ------ | 0.107 | 0.123 |
| TOTAL TEMPERATE ZONE (less arctic fuel) | 64.71 | 0.9706 | ------ | 1.557 | 1.791 |
| TOTAL, ARCTIC ZONE (less temperate fuel) | 73.21 | 1.0981 | ------ | 1.812 | 2.085 |

[1] Conversion Factors are based on average cubage for each item. Ship tons (40 cu. ft.) of any one item can be found by multiplying its Short Ton (2,000 lbs.) weight by that item's Conversion Factor.
[2] AF class III a.
[3] Information not available.

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**Time Elements in Class I Supply.** (FM 101-10, 12 Oct '44; Chart Corrected to 10 July '44)

(In the field under campaign conditions, the following time elements are the approximate periods required to perform the work indicated.)

| 1 | 1 | 2 | 3 |
|---|---|---|---|
| | Work | Daylight | Dark |
| 2 | Unload rations at Class I supply point and prepare for distribution to regiments or separate battalions. | 2 hours | 2½ hours |
| 3 | Distribution of Class I supplies to regiment by higher echelon at one supply point. | ½ hour | ½ hour |
| 4 | Distribution of Class I supplies to separate battalions by higher echelon or similar unit. | ¼ hour | ¼ hour |
| 5 | Preparation of one day's Class I supplies for issue at regimental or battalion Class I supply point. | ½ hour | 1 hour |
| 6 | Physical distribution by regimental supplies agencies of one field ration (transfer of loads) to kitchens. | 15 min | 20 min |
| 7 | Kitchens to be taken off trucks, set up, and ready to begin cooking. | 15 min | 20 min |
| 8 | Division of one ration into three meals at kitchens | 15 min | 20 min |
| 9 | Kitchens to cook and prepare for serving a hot meal, starting with a hot kitchen. | ① 2 hours | ①2½ hours |
| 10 | Kitchens to prepare a cold noon meal. The issue of this meal to take place usually coincident with serving of breakfast. (Included in item next above.) | 1 hour | 1½ hours |
| 11 | Serving a hot meal to troops from a kitchen truck when majority of men are served at the truck. | 45 min | 1 hour |
| 12 | Serving a hot meal to troops by means of carrying parties (assuming the kitchen truck not farther than 1,000 yards in rear of the company.) | 1½ hours | 2 hours |

① For "A" ration. For "B" ration reduce time by 25%.

**Gasoline Supply.** The factors controlling gasoline requirements of motor vehicles in military operation are:

*a. Movement distance (MD),* or the distance in miles that the center of mass of a unit is displaced. On a march this distance is measured from center to center of successive bivouac areas.

*b. Supply distance (SD),* or the average round trip distance between supply points and the troops. This distance is measured from supply points to center of the most distant bivouac area.

*c. Variables (V),* which consist of internal travel, reconnaissance, warming up engines, and abnormal periods or time required for low-gear operation. These items differ in each situation with the character of the operation, season of the year, weather, roads, and terrain, and must be estimated in accordance with actual conditions. Under average conditions, a constant of 10 unit miles of travel will usually cover these variables for estimating purposes.

To determine the number of unit miles of travel (UM) the following formula may be used:

$$UM = MD + .2 \times SD① + V$$

Example: Infantry division will move 20 miles, and the average round trip supply is 50 miles

$$MD = 20$$
$$SD = 50$$
$$V = 10$$

Applying the formula we have:

$$UM = 20 + (.2 \times 50) + 10$$
$$UM = 20 + 10 + 10 = 40$$

Now if we multiply this UM (unit miles of travel) by the number of gallons required to move all vehicles of the division one mile, we will have the gasoline requirements.

① Approximately two-tenths of the vehicles of a division function as supply vehicles, therefore multiply the supply distance by two-tenths.

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In order to determine the amount of gasoline to move all vehicles of a small unit one mile, specific computations are required. *Suppose,* for example, a company of the infantry regiment has 9 trucks ¼-ton, 1 truck ¾-ton, and 4 trucks 1½-ton. If from experience we find that trucks ¼-ton average 15.6 miles per gallon, trucks ¾-ton 12 miles per gallon, and trucks 1½-ton 8.0 miles per gallon. then the gallons of gasoline to move a truck one mile will be as follows: .064 for a truck ¼-ton, .083 for a truck ¾-ton, and .125 for a truck 1½-ton. To move the company one mile will require:

For the ¼-ton trucks .....9 × 0.064 or 0.576 gallons
For the ¾-ton trucks .....1 × 0.083 or 0.083 gallons
For the 1½-ton trucks .....4 × 0.125 or 0.500 gallons

To move all vehicles one mile .....1.159 gallons

In *predicting* expenditure it is good practice to add a 10% safety factor.

*d. Class III.* Army is responsible for operation of Class III railheads or supply points, and delivers gasoline in 5 gallon cans. These containers are transported by Army to Class III supply points, which should be pushed as far forward for divisions as the situation will permit. A Class III supply point will be established even though but a short distance from the Class III Railhead. Units will not be permitted to go to the Class III Railhead, but will go to the Class III supply point or points which are operated by Army, to exchange empty containers for full ones. In addition to those operated by Army, the Division may operate one or more Class III supply points for the purpose of distributing the QM Co prescribed load of Class III supply.

*e. Oil.* Estimate of oil requirements may be obtained from appropriate fuel and lubricant charts herein.

**Prescribed Loads of Class III Supply.** A reserve of gasoline and oil in containers is carried in each unit. Each vehicle sent to an army supply point replenishes its supply at some convenient gasoline supply point established by army at or en route to the army supply point. Vehicles remaining in the forward areas are resupplied by exchanging empty containers for full ones brought forward from gasoline and oil supply units by regimental, battalion, or division transportation.

**Basic Data—Class III Supply:**

(1) For planning purposes weight of gasoline may be taken as 40 pounds per 5 gallon drum.

(2) For planning purposes weight of engine oil for motors may be taken as 10 pounds per gallon.

(3) Capacity of cargo trucks and trailers for carrying 5 gallon gasoline drums (filled):

| | |
|---|---|
| 1-ton trailer | 50 |
| 1½-ton truck | 75 |
| 2½-ton truck | 125 |

## TIME AND SOLAR ILLUMINATION

**Methods of Designating Time and Date.** *a. Time.* Time will be expressed in a group of four digits ranging from 0000 to 2400. The first two digits on the left will be the hours after midnight, and the remaining two digits will indicate the minutes past the hour. Where the hour can be expressed by a single digit, it will be preceded by zero (0), for example, 0625 for 6:25 AM.

*b. Date.* (1) In *all* communications, including the text of plans, and in all publications, the date will be expressed by spelling out or abbreviating the name of the month. The day, month, and year will always be expressed in that order. The day will always be expressed by numerals, the month will be either spelled out or abbreviated. Abbreviations, if used, will consist of the first three letters in the spelling of the word. The year will be expressed by four digits or by the last two digits, for example:

14 January 1943; 14 Jan 1943; 14 Jan 43.

(2) When future plans are involved and it is desired to keep the date of the operation secret, dates may be expressed by D plus or minus a numeral . When D-day has actually passed, dates will be expressed as indicated in paragraph (1).

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*c. Greenwich Civil Time.* (1) Greenwich Civil Time will be used in both the heading and text of all communications of the following categories:

Messages and orders from the War Department.
Messages and reports to the War Department.
Orders, reports, and other communications between headquarters not having a common local time.
Communications with the Navy.
Communications with the armed forces of associated nations.

(2) All time-groups expressing Greenwich Civil Time, including those in the headings of messages, will be designated by the letter suffix Z immediately following the last digit of the group. For example, 190225Z indicates 2:25 AM on the ninteenth day of the current month, Greenwich Civil Time.

**Expression of Natural Phenomena.** *a.* Staff officers will avoid the use of such indefinite terms as First light, Last light, Daybreak, Daylight, Darkness, Dusk and Dawn. Terms of a definite nature such as Sunrise, Sunset, beginning and ending of evening and morning, and Nautical and Civil Twilights are permissible. However, expressions of these periods or times to lower units must be in clock time.

*b.* For the purposes of military planning and to facilitate staff work in expressing natural phenomena in time, Theater Commanders should prepare and publish for the theater as a whole or for major geographic portions thereof, daily time, sunrise, sunset, twilight, moon and height tables and should specify the hours the local time is different from Greenwich Civil Time.

*c.* The purpose of these tables is to forecast the periods of darkness and solar illumination for particular localities and to express their beginning, ending, or duration in local time.

**Twilights, Morning, and Evening.** *a.* Twilights are the periods of solar illumination prior to sunrise and after sunset.

Both morning and evening twilights are divided into three periods, astronomical, nautical, and civil. These periods are defined with reference to the sun's position below the horizon; astronomical 18°—12°, nautical 12°—6° and civil 6°—0°.

(1) Astronomical twilight affords such meager light, if any, that for military purposes it may be considered as a period of darkness.

(2) Nautical twilight provides enough illumination to carry on most types of ground movement without difficulty, and approaches conditions expected under full light of day. Vision is limited to 400 yards or less. For military purposes during the nautical periods weapons can be employed within the range of vision stated and daylight calculations relative to movement will apply, including restrictions on such movement. Bomb loading and repair work cannot be carried on, nor can tanks move buttoned up.

(3) Civil twilight affords sufficient light to carry on normal day activities. This period is the earliest or latest that provides sufficient natural illumination of targets to allow efficient observed artillery fire or day bombing.

*b.* Except for high latitudes, values for the approximate durations of astronomical, nautical, and civil twilights may be considered equal.

*c.* First light, a term used by the Armed Forces of the United Kingdom, includes a slightly greater period of twilight than defined by civil twilight.

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## MISCELLANEOUS DATA

**Factors for Conversion of Units.** To convert A to B, multiply A by C. To convert B to A, multiply B by D.

| 1 Unit | 2 Factor | 3 Factor | 4 Unit |
|---|---|---|---|
| A | C | D | B |
| **Length:** | | | |
| Miles | 63,360.0 ③ | 0.00001578 | Inches |
| Miles | 5,280.0 ③ | 0.0001894 | Feet |
| Miles | 1.609 | 0.6214 | Kilometers |
| Knots (naut. miles)① | 1.1516 | 0.8684 | Miles |
| Meters | 3.281 | 0.3048 | Feet |
| Kilometers | 3,281.0 | 0.0003048 | Feet |
| Inches | 2.540 | 0.3937 | Centimeters |
| Feet | 0.1667 | 6.0 | Fathoms |
| **Surface:** | | | |
| Square miles | 27,878,400.0 | 0.00000003587 | Square feet |
| Square miles | 640.0 ③ | 0.001563 | Acres |
| Acres | 43,560.0 ③ | 0.00002296 | Square feet |
| Acres | 4,047.0 | 0.0002471 | Square meters |
| Square inches | 6.452 | 0.1550 | Square centimeters |
| Square meters | 10.76 | 0.0929 | Square feet |
| **Volume:** | | | |
| Cubic feet | 0.025 | 40.0 | Tons (shipping) |
| Cubic feet | 1,728.0 | 0.0005787 | Cubic inches |
| Cubic inches | 16.39 | 0.06102 | Cubic centimeters |
| Cubic meters | 35.31 | 0.02832 | Cubic feet |
| Cubic feet | 7.481 | 0.1337 | U.S. gallons |
| Cubic feet | 6.23 | 0.1605 | Imperial gallons |
| Cubic feet | 28.32 | 0.03531 | Liters |
| U.S. gallons | 231.0 ③ | 0.004329 | Cubic inches |
| U.S. gallons | 3.785 | 0.2642 | Liters |
| Imperial gallons | 1.201 | 0.8327 | U.S. gallons |
| Fluid ounces | 1.805 | 0.5540 | Cubic inches |
| **Velocities:** | | | |
| Miles per hour | 1.467 | 0.6818 | Feet per second |
| Meters per second | 3.281 | 0.3048 | Feet per second |
| Meters per second | 2.237 | 0.4470 | Miles per hour |
| **Pressure:** | | | |
| Atmospheres (mean) | 14.70 | 0.0680 | Pounds per square inch |
| Atmospheres (mean) | 29.92 | 0.03342 | Inches of mercury |
| Pounds per square inch | 2.036 | 0.4912 | Inches of mercury |
| Feet of water | 62.42 | 0.01602 | Pounds per square foot |
| **Weight:** | | | |
| Ounces | 0.0625 | 16.0 | Pounds |
| Pounds | 7,000.0 ③ | 0.0001429 | Grains (avoirdupois) |
| Kilograms | 2.205 | 0.4536 | Pounds |
| Short tons | 2,000. | 0.0005 | Pounds |
| Long tons | 1.120 ③ | 0.8929 | Short tons |
| **Angular measurement:** | | | |
| Circle | 360.0 | 0.00278 | Degrees |
| Degree | 60.0 | 0.0167 | Minutes |
| Degree | 17.8 | 0.056 | Mils |
| Mil ② | 3.27 | 0.296 | Minutes |
| Minute | 60.0 | 0.0167 | Seconds |

NOTES

①Normally express speed as a number of nautical miles per hour.

②A mil is the angle subtended by an arc of 1 unit on a radius of 1,000 units or in other words, an angle the tangent of which is approximately (small angles) 1/1,000. The arbitrary value of the mil adopted by the United States Army is 1/6,400 of a circle.

③Exact values.

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**Characteristics of Methods of Expressing Directions of Angular Measurements:**

| Designation | Units of angular measurement used | Base direction | Direction of measurement | Method of expression |
|---|---|---|---|---|
| Azimuth | Degrees or mils | True, magnetic or grid (Y) north unless otherwise stated (south may be used) | Clockwise | True (magnetic) (grid) (Y) azimuth -- mils (--° --′) |
| Bearings | Degrees | True or magnetic north and south; whichever is designated | Direction which gives smallest arc (must not exceed 90° is used and is designated | N (S) --° --′ E (W) |
| Compass | Points (11° 15′ each) | Magnetic or true north and south | Direction which gives smallest arc | (NE by E) |
| Clock face, horizontal | Hours on a clock face | 12 o'clock, observer at center | From 12 o'clock to the hour indicated | At---o'clock |
| Clock face, vertical | Hours on a clock face | Vertical, target or reference point at center | From 12 o'clock to the hour indicated | At---o'clock |
| Vertical angle | Degrees or mils<br>Per cent or ratio (slopes and roads) | Horizontal | Vertically | Elevation, + (—) --mils (--° --′) slope, 10%, gradient 1:10 |
| Air and forward observers (FA) | Yards R or L<br>Yards O and S | Line of fire | Right or left and over or short and from observed point | ----R (L)<br>----O (S) |

NOTE

For military purposes, exact directions should normally be expressed as azimuths measured from grid, true, or rarely, magnetic north.

**Speed of Sound.** *a. In Air.* At 50° Fahrenheit equals 1,107.6 feet per second, in still air. With a 10 mile per hour wind against or in the direction of sound travel. the speed of sound decreases or increases about 15 feet per second; for a cross-wind, no effect. Speed increases one foot per second for each degree decrease Fahrenheit. Humidity has little effect on speed.

*b. In water.* At 33° Fahrenheit equals 4,938 feet per second.



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# ANNEX 2

# A COMMUNICATIONS ZONE SOP (ORD)

For the purpose of brevity the large volume of description and detail found in the Communications Zone SOP (ORD) has been reduced to a general coverage. For this reason the following will cover the basic points and serve as a guide.

## SECTION I

## GENERAL

1. *MISSION.*

*a.* THE PRIMARY MISSION of Ordnance Service is to ensure that the combat soldier always has all of his Ordnance weapons, ammunition, vehicles and other Ordnance equipment in perfect condition available at the right time and place. He must have first priority in all plans, procedures and operations of Ordnance. This demands the utmost teamwork and thorough interchange of information among FF, AF and ComZ Ordnance Service.

*b.* THIS MISSION CAN BE ACHIEVED only when Ordnance Service in the ComZ and all other ComZ services function as a closely knit team. Therefore, the Ordnance mission must also include supply and maintenance service to the ComZ so that supplies and ammunition can move forward, and the ComZ can defend itself from ground and air attack.

*c.* ORDNANCE SERVICE is also responsible for the reclamatioin of abandoned and disposition of captured Ordnance materiel, and the dissemination of technical information regarding all Ordnance materiel.

*d.* ORDNANCE HAS BEEN FURTHER CHARGED with responsibility for supply and maintenance of certain additional non-Ordnance materiel which will be discussed in other sections of this SOP. Ordnance will, on call, assist other services in the maintenance of their materiel as available supplies and facilities permit.

2. *ORGANIZATION.*

*a.* ORDNANCE SERVICE IN ComZ is supervised by the Ordnance Section ComZ through Headquarters Base and Advance Sections, Headquarters Base Groups to Battalions and separate Ordnance Companies.

*b.* EACH HEADQUARTERS has the normal Headquarters Administrative Sections. Major Branch sections in charge of ammunition, general supply and maintenance are necessary parts of the appropriate higher echelons.

3. *RESPONSIBILITIES.*

*a.* ORDNANCE SECTION, HEADQUARTERS ComZ, is responsible to the Commanding General that all Class II, IV and V supplies for which Ordnance Service is charged with the supply and maintenance function, are available in quantity and condition to meet requirements. This responsibility is discharged by this Headquarters Section which assigns troops, locates and plans permanent and semi-permanent installations and directs supplies into the Base and Advance Sections to meet the overall task. This Headquarters also maintains complete stock control system, requisitions supplies on the Zone of the Interior, and transships to maintain balanced stocks throughout the entire ComZ. It inspects units in the field, ensures coordinated planning and operations; it enforces correct technical operations from the standpoint of mechanical efficiency, safety and prevention of waste.

4. *PERSONNEL.*

*a.* ORDNANCE OFFICERS, ENLISTED MEN, WAC'S and units are assigned to Base and Advance Sections by this Headquarters. They are assigned to specific installations when warranted. Transfers of key personnel and of units from fixed installations must be approved by the O. O. ComZ.

*b.* INTER ADVANCE AND BASE SECTION transfer of units and personnel will be made by the O. O. ComZ. Notification will be given O. O. ComZ of all requests for orders transferring units or personnel within an Advance or Base Section.



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5. *INSTALLATIONS.*

*a.* THERE ARE SEVERE LIMITATIONS in continental operations as to construction and equipment for shops and depots. Permanent and semi-permanent installations will be located and planned in accordance with theater overall plans. These plans will be on record at this Headquarters, the Base or Advance Section Headquarters and the Depot or Shop. The Senior Ordnance Officer of each of these Headquarters will, upon being relieved, present these plans to his successor with notations of progress. It is essential that plans for installation development be carried out regardless of personnel changes.

6. *POLICY.*

*a.* GENERAL POLICY is based on War Department, theater publications and directives.

*b.* EVERY EFFORT WILL BE MADE to restrict reports and paper transactions to the *minimum* consistent with:

(1) The necessity to know the Ordnance ammunition, maintenance and supply position at all times.

(2) The necessity to be prepared to take immediate remedial action.

(3) The technical nature of Ordnance activities which must be thoroughly understood by all concerned.

*c.* ORDNANCE SERVICE TECHNICAL CHANNELS AND SOP's have been established with the sole purpose of getting Ordnance Service to the using arms and services in the shortest possible time during the entire operation, and with the least effort on the part of the using arms and services. Use of these established channels and procedures will result in effective control of Ordnance materiel for its ultimate use.

*d.* BECAUSE OF SHIPPING AND PRODUCTION DIFFICULTIES conservation of time, effort and materials is of paramount importance. All Ordnance personnel will be alert to prevent waste and to render service under difficult conditions. This may require the use of improvised materials or equipment.

7. *STANDING OPERATING PROCEDURE.*

*a.* SCOPE AND AUTHORITY. This SOP governs all Ordnance activities and operations which have been made the responsibility of this Headquarters. It has been prepared to ensure mutually understood and uniform procedures throughout the ComZ. Furthermore, the aim has been to indicate clear cut definitions of the respective responsibilities of all elements and echelons of Ordnance Service.

Standard Operating Procedures published by or for lower echelons will conform to this SOP.

*b.* REFERENCE STANDARD OPERATING PROCEDURES are mentioned in appropriate sections of this SOP.

*c.* CHANGES. Necessary revisions of this SOP will be accomplished by publication of new pages which will bear the number of the original page with a letter suffix, *e.g.*, 3A, 3B, etc. If it is necessary to replace one page with two pages of changes, they will be numbered 2.1A 2.2A, etc.

At appropriate intervals check lists will be distributed in order that all users of the SOP may be sure of having a fully revised edition.

## SECTION II

## CLASS V SUPPLIES—AMMUNITION

8. *DEFINITIONS.*

*a.* CLASS V SUPPLIES include ammunition, military explosives, pyrotechnics, anti-tank mines and chemicals, see FM 100-10, par. 1. Other definitions pertinent to ammunition supply are found in that paragraph and in TM 9-1900, par. 4.

9. *ENGINEER AND CWS CLASS V SUPPLIES.*

*a.* CLASS V SUPPLIES (Engineer and CWS) are stored in the Combat Zone in Army APS's. They may be stored in ComZ Ordnance Ammunition Depots or in separate depots as determined by the respective Chiefs of Special Staff Sections concerned. When stored in Ordnance Ammunition depots they will be handled in accordance with rules stated in Depot SOP. (See par. 11d below).

*b.* RESPONSIBILITY FOR ESTIMATING REQUIREMENTS and maintaining stock levels will be that of the respective Staff Section of this Headquarters.

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*c.* SHIPMENTS OR ISSUES will be made only on orders of Headquarters, ComZ, CWS or Engineer Officers. (See par. 12c below).

10. *POLICY.*

*a.* THE ADMINISTRATIVE CONTROL of all Class V supplies in the ComZ is the responsibility of the Ordnance Officer, ComZ. This control will be exercised through the Ordnance Officer of the Advance Section or Base Section in whose area the activity is located.

*b.* ALL AMMUNITION SUPPLY TRANSACTIONS affecting two or more Sections or between a Section in the ComZ and Army or Theater Hq. will be handled by Hq. ComZ except when direct communication is authorized.

*c.* THE GOVERNING PRINCIPLES OF Class V supply in the ComZ are:

(1) To provide suitable storage

(2) To maintain at all times the prescribed theater levels.

(3) To make shipments so that there will be an orderly flow of these supplies to the front.

11. *AMMUNITION DEPOTS.*

*a.* ADVANCE SECTION DEPOTS will be located at sites chosen by ADSEC. Such sites may be ASP's left by the Army or entirely new locations.

*b.* INTERMEDIATE AND BASE SECTION DEPOTS will in most cases be continued operation of selected ADSEC Depots.

*c.* CONFORMITY WITH THEATER PLANS. Semi-permanent depots will be established at sites previously determined by Theater Hq. as fitting the overall picture. Expansion to permanent installations will be according to Theater plan. which will be made known to ADSEC Ordnance Officer in order that temporary sites will conform so far as possible.

*d.* DEPOT OPERATING PROCEDURES are given in detail in Section II of this SOP.

*e.* ATTENTION IS DIRECTED to "Notes on Organization and Operations, Ammunition Division, Hq. SOS, May 1943." This document (12 pages, 22 exhibits) was prepared to "serve as a guide and reference for Ordnance Officers who may be ordered into the field or a new theater of operations with the mission of Ammunition Supply."

12. *RECEIPTS AND ISSUES.*

*a.* INCOMING SHIPMENTS from the UK and US will be automatic during the initial phases of the operation. Shipments over and above the automatic schedule and upon the termination thereof, will be called forward by requisitions and expenditure reports from Hq. ComZ.

*b.* ALLOCATIONS OF SHIPMENTS to particular depots will be made by the Ordnance Officer, ComZ.

*c.* ISSUES FROM DEPOTS will be primarily to Army Depots or ASP's, or if required by the Army Ordnance Officer, direct to field Force units passing through the ComZ. Issues will be made to ComZ troops and to Air Force Service Command Depots (Class V (C) only) as required. Transportation orders for shipment from ComZ depots will be approved or issued by Ordnance Officer, ComZ. Shipments will be based on:

(1) Demands made by FF, AF or ComZ Ordnance Officers within their authorized balances.

(2) Engineer and CWS Class V items—instructions from the respective services.

*d.* RESERVES FOR FIELD FORCES will be maintained in part, in ComZ depots as agreed between the Ordnance Officers of Army and ComZ. Stocks necessary to maintain the part of reserves under ComZ control are obligated to the Army concerned and will be shipped only upon demands from that Army. Depot Commanders will be notified of specific obligations of stocks in their charge Otherwise reserve commitments for the Army will apply against ComZ stocks as a whole and will be a guide in approving or issuing transportation orders.

*e.* DEPOT COMMANDERS May make emergency issues from unobligated stocks in their control to any unit commander upon his certificate. Such certificate will state that the ammunition required is due to an emergency and is to replace combat expenditures and/or losses by enemy action. Obligated stocks may be

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used in great emergency, *notifying Hq. Com Z* of such issues by the most expeditious method.

*f.* TRAINING AMMUNITION for troops in ComZ will be issued only upon orders from Hq. ComZ.

13. *SAFETY AND ACCIDENTS INVOLVING AMMUNITION.*

*a.* SAFETY DISCIPLINE. It is the responsibility of all Ordnance Officers in ComZ to be alert to detect violations of safe practice in respect to ammunition, Engineer and CWS Class V supplies, and to call such violations to the attention of the appropriate headquarters.

*b.* REPORTING OF ACCIDENTS. All accidents involving the above supplies shall be reported promptly to Hq. ComZ in accordance with AR 750-10.

14. *RECORDS AND REPORTS.*

*a.* EACH ComZ AMMUNITION DEPOT will maintain stock records and render reports as prescribed in Depot SOP.

*b.* CENTRAL STOCK RECORDS shall be maintained in Hq. ADSEC until the establishment of additional sections, at which time the central control function will pass to Hq. ComZ.

15. *SALVAGEABLE COMPONENTS.*

*a.* ComZ TROOPS will turn in to the nearest ComZ Ammunition Depot all salvageable inert ammunition components, after careful examination to assure freedom from explosives. Each shipment must be accompanied by a certificate of an officer of the unit concerned showing that the contents are "free from explosives." The following are designated as salvageable: Bandoliers, clips, metallic links, fabric belts, cartons, boxes and their tin lining, fiber containers, clover-leaf packs and fired cartridge cases. Unit commanders are responsible that a maximum of salvageable material is turned in.

*b.* ComZ DEPOTS will receive salvageable components from Army ASP's consolidate with that received from ComZ troops and ship to the rear on orders from Hq. ComZ.

16. *CAPTURED AND CONFISCATED AMMUNITION.*

*a.* HAZARDS. There is the probability of encountering booby traps in stocks, and in some cases, even in original packages. In many cases the most dangerous types will have been destroyed by the Army troops, but this must not be relied upon.

*b.* UNSERVICEABLE AND LOOSE captured ammunition will be destroyed where found. The appropriate Ordnance Officers (with Engineer and CWS assistants where necessary) will furnish personnel for such destruction when requested. Personnel not specially trained will *under no circumstances* move or disturb loose, scattered, fired or destroyed enemy munitions.

*c.* STORAGE OF CAPTURED AMMUNITION.

(1) Retention of Original Stocks. When the site of an enemy ammunition depot is taken over, the stacks of remaining ammunition will be left intact until otherwise directed by higher authority. This will conserve labor and minimize dangers of booby traps.

(2) Safety distance. American ammunition stacks will be kept at least 500 yards from stacks of enemy ammunition.

(3) Shipped enemy ammunition will be stored according to the same general plan as to types, quantities and distances as applies to American ammunition.

17. *BOMB DISPOSAL.*

*a.* RESPONSIBILITY. The Ordnance Officer ComZ is charged with the responsibility for disposal of unexploded bombs, artillery and mortar shells, both enemy and Allied, as prescribed in FM 9-40, in all ComZ areas excepting those in Air Force installations. Disposal operations will be carried out as follows:

(1) On Beaches: By Naval units

(2) In ComZ (other than Air Force areas): By Ordnance Bomb Disposal Units assigned or attached to ComZ.

(3) In Air Force areas: By Ordnance Bomb Disposal Units assigned or attached to Army Air Forces.

*b.* INTELLIGENCE.

(1) O. O. ComZ will publish new intelligence on enemy and Allied munitions.

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(2) Bomb Disposal Officers will arrange through appropriate Ordnance Officers to forward six samples of all new enemy munitions direct to O. O. ComZ.

*c.* BOMB DISPOSAL STAFF OFFICERS: In accordance with FM 9-40, Bomb Disposal Staff Officers will be assigned to appropriate Headquarters. In the absence of such an officer, the senior Ordnance Officer will act in his stead.

## SECTION III

## CLASS II AND CLASS IV SUPPLIES

18. *DEFINITIONS.*

*a.* CLASS II SUPPLIES are all major items, tools, spare parts, and supplies listed in T/E and T/BA, all items listed in SNL as supplementary to the T/E or T/BA, replacement items, accessories, parts and supplies carried by Ordnance companies as basic loads.

*b.* CLASS IV SUPPLIES are usually special in nature. Example—waterproofing materials.

*c.* CONTROLLED ITEMS are normally all Monthly Material Status Report items and such other items as the Ordnance Officer ComZ may declare "controlled" because of a critical shortage in supply. Lists of controlled items will be published as required.

19. *POLICIES.*

*a.* GENERAL POLICIES for Ordnance Class II and IV supplies in the ComZ will follow those established in FM 9-5, FM 9-25, AR 850-15 and FM 100-10.

*b.* ORDNANCE RESPONSIBILITY for procurement, receipt, storage and issue of all Ordnance major items and parts and supplies applicable thereto is augmented by War Department directives including the following general categories:

(1) All tires and tubes except those solely mounted on aeroplanes, and cured on, or molded on, solid tires. (W.D. Circulars 86, 111, 125, and 247, 1943).

(2) Parts for repair of warehouse materials handling equipment (W.D. Memo W5-9-43, 15 May 1943) (Amended by Change No. 1, 14 Aug 1943 and ETO Cir. 13, 7 Feb 1944).

(3) Parts for special purpose vehicles of other Services and internal combustion engine-powered units (W.D. Cir. 180, 9 August 1943).

*c.* MAJOR ITEMS WILL BE ISSUED complete with OSPE; OVM and First Echelon tools and spare parts kits, and will be returned complete through maintenance channels.

*d.* POLICIES AND PROCEDURES established herein are predicated on units arriving in ComZ complete with all T/E, basic loads and authorized allowances. Procedures for initially equipping units arriving direct from U. S. will be published.

*e.* COMMON SUPPLIES will be issued to British units operating in American sectors without adequate British supply and maintenance facilities.

20. *DEPOTS.*

*a.* CONFORMITY WITH THEATER PLANS. Semi-permanent depots will be established at sites previously determined by theater Hq. as fitting the overall picture. Expansion to permanent installations will be according to theater plan.

*b.* BASE AND ADVANCE DEPOTS will receive, store, and issue all Ordnance materiel and will consist of the following elements: (1) Binned area; (2) Bulk area; (3) GP, SP and SE Vehicle Park; (4) Combat Vehicle and Artillery Park. Dispersion and arrangement of elements will depend on topography; requirements for defense against enemy attack by air and ground, and defense against sabotage, but to assure centralized control and command of all elements, dispersion will be held to a minimum consistent with the above factors.

*c.* VEHICLE PARTS as distinguished from depots, will be established as required for receipt of vehicles from assembly plants and for port clearance. Vehicle parks so established will be solely for these purposes. Issues of vehicles will be made normally at Base and Advance Depots.

*d.* DEPOT OPERATIONS will conform with procedures established in Volume III—General Supply Depot Operations; Army Service Forces Manual M-402 and AR 850-18.

21. *STOCK LEVELS.*

*a.* BASE DEPOT LEVELS will be governed by existing ComZ directives on levels of supply and maintained by O.O. ComZ by:

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(1) Automatic shipments from UK.
(2) Requisitioning on UK.
(3) Requisitioning on NYPE (when authorized).
(4) Local purchase.

*b.* ADVANCE DEPOT LEVELS will be limited to the ability of the depot to remain mobile. Advance depots will maintain stocks based on the weapons and vehicles to be maintained.

22. *RECEIPT AND ISSUE.*

*a.* NEW MATERIEL will be raceived at ports from UK or US and be directed by O. O. ComZ to appropriate vehicle parks, vehicle assembly plants, Advance and Base Depots.

*b.* RECLAIMED MATERIEL will be received at Base Depots from Base Shop and Base Section 3rd and 4th echelon maintenance units and at Advance Depots from Advance Section 3rd and 4th echelon maintenance units.

NOTE: See Appendix I—"Flow of Class II and IV Supplies".

*c.* ComZ ORDNANCE THIRD AND FOURTH ECHELON MAINTENANCE UNITS will issue only to the following, unless otherwise directed:

(1) All ComZ Units:
  (a) Controlled items:
    *1.* As an exchange for a like unserviceable item turned in for repair, reclamation or salvage.
    *2.* On requisition with certificate as follows:
    "I certify that the quantities and items requisitioned, together with the quantities 'on hand', and 'due in', do not exceed T/E and that originally issued items have been destroyed or lost as a result of combat'".
  (b) Non-controlled items:
    *1.* As an exchange for a like unserviceable items turned in for repair, reclamation or salvage.
    *2.* On requisition with the following certificate accomplished:
    "I certify that the quantities and items requisitioned, together with the quantities 'on hand' and 'due in', do not exceed authorized allowances."

*d.* ADVANCE DEPOTS WILL ISSUE only to the following, unless otherwise directed:

(1) to FF and AFSC Depots:
  (a) Controlled items:
    *1.* On demand against levels established by O.O. ComZ. Levels will be reviewed twice monthly, as a result of Materiel Status Report.
    *2.* As an exchange for like unserviceable controlled item turned in to ComZ Maintenance units for repair, reclamation and/or salvage.
  (b) Non-controlled items:
    *1.* Immediate action requisitions.
    *2.* Requisitions based on consumption.

(2) Third and Fourth Echelon Maintenance Units and AA Maintenance Units (AA materiel only) in the Advance Section:
  (a) Controlled items:
    *1.* Exchange for like unserviceable controlled items turned into Reclamation Section of Base Shop.
    *2.* Consolidated back orders of unit requisitions.
    *3.* Requisitions based on consumption.
  (b) Non-controlled items:
    *1.* Exchange for like unserviceable non-controlled items turned into Reclamation Section of Base Shop.
    *2.* Consolidated back orders of unit requisitions.
    *3.* Requisitions based on consumption.

*e.* BASE DEPOTS WILL ISSUE only to the following, unless otherwise directed:

(1) To advance Depots:
  (a) Controlled items:
    *1.* Stock transfers from O.O. ComZ.
    *2.* Consolidated back orders of unit requisitions.
  (b) Non-controlled items:
    *1.* Consolidated back orders of unit requisitions.

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2. Requisitions based on consumption.

(2) To Third and Fourth Echelon Maintenance Units, AFSC Depots and AA Maintenance Units (for AA Materiel only) in the Base Section:

(a) Controlled items:
1. Exchange for like unserviceable items turned in to Base Shop.
2. Consolidated back orders of unit requisitions.
3. Requisitions based on consumption.

(b) Non-controlled items:
1. Exchange for like unserviceable items turned in to Base Shop.
2. Consolidated back orders of unit requisitions.
3. Requisitions based on consumption.

(3) To Base Shop:

(a) Controlled items:
1. Immediate action requisitions.
2. Requisitions based on consumption.

(b) Non-controlled items:
1. Immediate action requisitions.
2. Requisitions based on consumption.

(4) To Vehicle Assembly Plants:

(a) Controlled items:
1. Immediate action requisitions.
2. Requisitions based on consumption.

(b) Non-controlled items:
1. Immediate action requisitions.
2. Requisitions based on consumption.

*f.* MATERIEL WILL NORMALLY BE ISSUED to FF and AF units through appropriate FF and AF channels and to ComZ units through channels established in sub-paragraphs 22 *c.* and *d.* above, unless otherwise directed by O.O. ComZ.

*g.* ALL ECHELONS of supply will maintain an adequate back order system.

23. *STORAGE.*

*a.* STORAGE IN STATIC DEPOTS WILL BE in accordance with principles and practices established in Army Service Forces Manual M-402 and AR 850-18.

*b.* ECONOMICAL WAREHOUSING is essential to assure sufficient space for storage of Ordnance materiel.

24. *RECORDS AND REPORTS.*

*a.* STOCK RECORDS WILL BE MAINTAINED by *all* Depots and Shops in ComZ.

(1) Stock Record systems will conform to procedures established herein.

(a) Deviations in physical records and mechanics of handling necessitated by a particular situation will be cleared with the O. O. ComZ.

(b) No deviation will be made in coding, part number selection and arrangement of stock record cards.

*b.* REPORTS WILL BE REQUIRED as follows:

(1) On controlled items, three times a week, in the most expeditious manner, in a form to be prescribed, giving the following information for each item.

(a) Unshipped credits
(b) Receipts
(c) Issues
(d) Unobligated balance
(e) Total back orders (including unfilled exchanges)

(2) Non-controlled items will be reported in accordance with a schedule of Stores Reports to be published in the ComZ as prescribed herein.

*c.* SUCH ADDITIONAL REPORTS as may be required will be called for *only* when the situation demands information obtainable only from a special report.

25. *CAPTURED MATERIEL.*

*a.* CAPTURED CLASS II AND CLASS IV SUPPLIES received through channels from FF and AF, or acquired in ComZ, will enter the Ordnance Supply Chain, be stored, preserved, recorded and reported in accordance with procedure established in paragraphs 23 and 24 of this SOP.

*b.* CLASS II SUPPLIES will be issued and/or evacuated in accordance with orders to be published.

*c.* EXTREME CARE WILL BE USED in evacuating and storing captured weapons

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and vehicles to assure the retention of all pertinent accessories, tools and pertinent publications.

*d.* PILFERAGE BY TROPHY COLLECTORS will not be permitted.

26. *MISCELLANEOUS.*

*a.* BASE DEPOT WILL RECEIVE UNSERVICEABLE MATERIEL for evacuation to U. K. for 5th echelon work until establishment of Base Shop in ComZ.

*b.* SERVICEABLE VEHICLES AND WEAPONS WILL NOT BE CANNIBALIZED.

*c.* CLASS II AND CLASS IV SUPPLIES will be issued to U. S. Navy, Office of War Information, Office of Strategic Services, Civil Affairs and Red Cross as governed by existing regulations, by procedures established in this section.

## SECTION IV

## MAINTENANCE, EVACUATION AND RECOVERY

27. *DEFINITION.*

*a.* MAINTENANCE as defined for this SOP includes:

(1) *Preventive Maintenance:* The systematic servicing, inspection and prevention of abuse, and failure of items of equipment.

(2) *The repair and overhaul* of major items, units, assemblies, sub-assemblies, and parts.

(3) *The modification* of major items, units, assemblies, sub-assemblies, and parts.

(4) *The recovery and evacuation* of major items, units, assemblies, sub-assemblies, and parts.

(5) *The reclamation and salvage* of major items, units, assemblies, sub-assemblies and parts, including the reconditioning and return to stock, and reduction of scrap to a minimum.

28. *RESPONSIBILITIES.*

*a.* MAINTENANCE WORK will be performed for the following:

(1) The Field Forces: All 5th echelon work and such 4th echelon work as may be required. For this purpose 4th echelon units will be properly distributed in the forward area of ComZ.

(2) The Air Force: All 5th echelon work and such 4th echelon work as may be required.

(3) The ComZ: All 3rd, 4th and 5th echelon work other than that which is the responsibility of other Services.

(a) Render special assistance to any of the Services on call.

29. *COMMUNICATIONS ZONE MAINTENANCE ESTABLISHMENTS.*

*a.* 3rd, 4th and 5th ECHELON MAINTENANCE UNITS will perform all work other than that for which using units are responsible. Permanent Base and Advance Section Shops, mobile shops and mobile Maintenance Units, inspection teams, recovery and evacuation teams, and instructional teams will be established as required. Base shops and permanent lower echelon shops are included in Headquarters ETO plans and are provided for in construction planning; they must be located and laid out in accordance with these plans. Mobile and temporary establishments are necessary and will be established by the Advance and Base Sections concerned without prior approval. Units will use the improvised shelter until existing facilities are obtained through the GPA, or new construction is erected by the Engineers.

*b.* ESTABLISHMENTS WILL BE LOCATED to conform so far as is practicable to the main axes of communications, as close to the centers of gravity of the loads as possible. The type of units selected to operate the establishments will be governed by the major items to be repaired.

30. *POLICY OF OPERATIONS.*

*a.* GENERAL. It is the general policy of Ordnance Service in the ComZ to operate in accordance with the standard echeloned maintenance principle. Each higher echelon will embrace operations performed by all lower echelons.

*b.* HEADQUARTERS in the ComZ will control the maintenance flow between Combat Zone and Communications Zone and *inter* Base and Advance Section main-

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tenance flow. The Base and Advance Sections will control *intra* Base or Advance Section maintenance flow.

*c.* MAJOR ITEMS, assemblies, sub-assemblies, units and parts received for repair will be inspected for damage resulting from improper operation, poor maintenance, and for completeness of the major items, its tools and equipment. A "Tally-in" will be given to the delivering agent noting deficiencies. The local Ordnance Officer is responsible for correcting these conditions by personal action directly with the using unit. He will report the circumstances through command channels when necessary.

*d.* EVERY SHOP will have a competent inspection and scheduling section. The inspection will determine the exact condition of the major items, assembly, sub-assembly, unit or part brought in for repair. It will hold the degree of disassembly and the quantity of new parts to an absolute minimum by a thorough testing procedure using precision testing instruments. The scheduling will be by priority based on requirements and on the segregation of fast moving from slow moving jobs requiring many hours' labor. No job will be undertaken unless the necessary functional parts to complete the work are readily available. If parts are unavailable the job will be evacuated.

*e.* NO PART will be drawn unless the old part has been determined unserviceable. Recoverable parts will be reconditioned and restocked. Machinists and other specialists will be employed full time reconditioning old items and making new parts in critical supply.

*f.* ORDNANCE SHOPS are charged with repair of non-Ordnance items, including:

(1) Tires and tubes of all elements of the FF, AF and ComZ, except those solely mounted on airplanes and those cured on or molded on solid tires (W.D. Circulars 86, 111, 125, and 247, 1943).

(2) Warehouse materials handling equipment (W.D. Memo W5-9-43, 15 May 1943) (Amended by Change No. 1, 14 Aug 1943 and ETO Circular 13, 7 Feb 1944).

(3) Special purpose vehicles and internal combustion engine powered units (W.D. Cir. 180, 9 Aug 1943).

(4) Field Ranges. Assistance will be furnished for necessary repairs beyond the facilities of the Quartermaster Service.

(5) Track laying vehicles with maximum speed in excess of 12 miles per hour. Third and Fourth echelon repairs on these vehicles with maximum speed less than 12 miles per hour. Fifth echelon maintenance of track laying vehicles with maximum speed less than 12 miles per hour is a responsibility of the Engineer Corps.

*g.* NO MAJOR ITEM will be released as serviceable from any shop without complete servicing. All equipment, including accessories and tools, will be similarly treated and be complete as far as practicable.

*h.* EVERY PRECAUTION of good shop practice for protection of shop equipment will be taken.

*i.* SHOPS WILL ISSUE to all lower echelons in their district. They will maintain stock records and a "Back Order" system.

31. *EVACUATION.*

EVACUATION OF UNSERVICEABLE MAJOR ITEMS, assemblies, subassemblies, units and parts will be accomplished by Maintenance and Evacuation Companies as outlined below:

*a.* FROM THE COMBAT ZONE to the nearest ComZ maintenance unit by FF and AFSC units assisted by ComZ when required.

*b.* TO A HIGHER ECHELON when the repair involves shop tools and equipment, parts, assemblies, and other supplies and/or more highly skilled mechanics than available.

*c.* TO A HIGHER ECHELON OR LATERALLY to the same echelon when the shop is overloaded or when the materiel in question is of a specialized type for which the units are neither trained nor equipped.

*d.* WHEELED NON-COMBAT VEHICLES will not be evacuated beyond 4th echelon.

*e.* ALL OTHER MATERIEL will be evacuated direct to Base Shop from either 3rd or 4th echelon units. Major items (except wheeled non-combat vehicles), assemblies, sub-assemblies, units and parts requiring 5th echelon work, will be

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evacuated direct to the Base Depot *until* the Base Shop is established. Base Depots will evacuate this materiel to appropriate Base Shop in U.K. as soon as authorized.

*f.* HYDRO-PNEUMATIC recuperator mechanisms and pneumatic equilibrators will not be disassembled in the ComZ. They will be evacuated to the U.K. through Base Depot.

*g.* UNLESS IMMEDIATE REPAIRS CAN BE MADE LOCALLY, warehouse materials handling equipment and shop tools and equipment will be evacuated to Base Shop for repair.

*h.* AFTER THE ESTABLISHMENT of Base Shops in the ComZ, excess quantities of unserviceable materiel beyond the capacity of the ComZ Base Shops will be released to the Base Depot for evacuation to the U.K.

*i.* MAJOR ITEMS, Units, assemblies and sub-assemblies, will be evacuated complete with all component parts and assemblies, as prescribed in W.D. Cir. 274, 1943.

*j.* RADIAL ENGINE CYLINDERS, specially classified tires and other items covered by special instructions will be shipped to the U.S. through Base Depots.

32. *RECOVERY RESPONSIBILITY.*

*a.* RECOVERY OF ORDNANCE MATERIEL will be a continuing responsibility of *all* Ordnance personnel in order that the maximum materiel will be in supply channels.

*b.* ComZ RECOVERY of abandoned and immobilized materiel will be performed by ComZ Ordnance 3rd and 4th echelon maintenance units and evacuation companies.

(1) Advance and Base Sections will operate road patrols and recovery points along the main axes of communication as required.

(2) British items of Ordnance materiel will be recovered in areas not adequately served by REME units and collected for return to nearest appropriate British Ordnance units or REME workshops for delivery to a U.S. Ordnance Shop for repair when requested.

33. *CANNIBALIZATION.*

*a.* UNSERVICEABLE VEHICLES AND WEAPONS will not be cannibalized except by 4th echelon Ordnance personnel, under direct supervision of an Ordnance officer. When cannibalization is performed, the entire vehicle or weapon will be dismantled and:

(1) Serviceable parts or units will be returned to stock.

(2) Unserviceable parts or units will be evacuated to 5th echelon Base Shops for reclamation.

*b.* IF THROUGH CANNIBALIZATION serviceable units and parts stocks accumulate in excess of basic loads of 4th echelon units, excess parts and units will be returned to proper depot through reverse supply channels.

*c.* UNDER NO CIRCUMSTANCES will major items, assemblies or sub-assemblies be stripped prior to evacuation to a higher repair echelon. However, serviceable items may be replaced by *unserviceable* items.

*d.* BASE SHOPS will return immediately to Depot stock all reconditioned assemblies, sub-assemblies, units and parts.

*e.* ALL MAJOR ITEMS CANNIBALIZED will be reported weekly through Ordnance channels to O.O. ComZ.

34. *MODIFICATIONS.*

*a.* NO MODIFICATIONS will be performed on any Ordnance materiel without prior approval of the O.O. ComZ.

*b.* ALL MAJOR ITEMS will be inspected insofar as practicable, prior to issue to ensure that all modifications approved or required by theater directive and for which the necessary kits are available, are completed.

*c.* ORDNANCE MAINTENANCE UNITS and using arms and services will requisition necessary kits to perform modifications allocated to them by MWO-OD, except as noted in paragraphs a. and b. above.

35. *CAPTURED MATERIEL (CLASSES II AND IV).*

*a.* CAPTURED MATERIEL will be carefully inspected by competent personnel for booby traps and be evacuated to Depots for further disposition as directed by the O.O. ComZ. Large quantities will not be evacuated, prior to specific directions of the O.O. ComZ.

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*b.* THE MATERIEL will not be stripped or otherwise disturbed until so directed by Advance or Base Section Ordnance Officer.

*c.* EVACUATION of American and British materiel will normally take priority over evacuation of captured enemy materiel.

*d.* NEW TYPES of captured enemy materiel will be carefully protected and immediately reported to the O.O. ComZ.

36. *COMMAND TECHNICAL INSPECTIONS.*

*a.* ORDNANCE MAINTENANCE UNITS will assist in an advisory capacity in command inspections and make such technical inspections as directed.

37. *REPORTS.*

*a.* REPORT REQUIREMENTS on maintenance matters will be kept to a minimum and limited to those necessary to balance the load among shops, and to permit proper planning and location of maintenance establishments.

*b.* SPECIFIC REPORTS required will be the subject of further instructions.

38. *MISCELLANEOUS.*

*a.* ORDANANCE SERVICE will perform necessary Ordnance maintenance functions for the Navy, Red Cross, Office of War Information, Office of Strategic Services, Civil Affairs, and for such other agencies as directed in accordance with existing directives.

## SECTION V

## VEHICLE ASSEMBLY AND MOVEMENT

39. *DEFINITIONS.*

*a.* CASED VEHICLES are those general purpose vehicles which are disassembled and boxed for shipment in one of two types of packs:

(1) SUP—Single unit pack, indicating one complete vehicle in one case or series of cases.

(2) TUP—Twin unit pack, indicating two complete vehicles in a series of cases.

*b.* BOXED VEHICLES are those special purpose and special equipment vehicles, boxed for shipment, but requiring only the assembly of wheels and removal of rust preventives to make them mobile.

*c.* WHEELED VEHICLES are those vehicles requiring only the removal of rust preventives, protective devices and thorough washing to remove salt water deposits to make them mobile.

(1) Vehicles may be received waterproofed for wadding in accordance with SOP for Waterproofing Vehicles in the theater.

*d.* SET UP VEHICLES are those combat vehicles on full or half tracks requiring only the removal of rust preventives, protective devices and flushing to remove salt water deposits to make them mobile.

*e.* VEHICLE ASSEMBLY is the assembly of *cased vehicles* at an established assembly plant at or near a port area.

*f.* PORT ASSEMBLY is the removal of boxes, installation of wheels and servicing of boxed vehicles on the quayside or in the immediate port area.

*g.* PORT SERVICING is the servicing of *wheeled and set up vehicles* on the quayside to assure satisfactory mechanical condition during movement.

*h.* MOVEMENT is the transfer by Ordnance personnel of replacement wheeled, half track and full track vehicles between port areas, vehicle assembly plants, vehicle parks, Base and Advance Depots. The transportation of boxed and cased vehicles prior to assembly is a responsibility and function of the Transportation Corps.

40. *POLICY.*

*a.* THE GENERAL POLICY of the Vehicle Assembly and Movements Section will be to make available for issue as rapidly as possible *all* replacement Ordnance vehicles received in the ComZ.

*b.* SPECIAL PURPOSE AND SPECIAL EQUIPMENT VEHICLES with locked bodies and boxed loads will not be opened, and care will be taken to prevent pilferage of components of these vehicles.

*c.* ALL VEHICLES will be completely serviced prior to movement under their own power.

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41. *ASSEMBLY OF SUP AND TUP VEHICLES.*

*a.* SUPPLIES REQUIRED for operation of Vehicle Assembly Plant will be requisitioned on nearest appropriate depot.

42. *ASSEMBLY OF BOXED VEHICLES.*

*a.* ORDNANCE PARK EVACUATION AND SERVICING CREWS will unbox, assemble and *service boxed vehicles* prior to movement to Vehicle Parks.

43. *RECEIPT OF WHEELED AND SET UP VEHICLES.*

*a.* PERSONNEL of Vehicle Distributing Companies working with detachments from Maintenance and Evacuation Companies will receive, service and move *wheeled and set up* vehicles from the port areas. Detailed steps to be taken to service all vehicles properly before movement will be published as memoranda.

*b.* ADVICE OF EXPECTED RECEIPT of *wheeled and set up* vehicles will be given by O.O. ComZ. Ordnance port servicing and movement crews will coordinate with Port Ordnance Officer in order to render the maximum service to assure the safe arrival of vehicles and prompt servicing to clear port areas.

44. *MOVEMENT.*

*a.* MOVEMENT OF ORDNANCE CONTROLLED VEHICLES from ports, vehicle assembly plants, vehicle parks and Base Depots will be made by Vehicle Distributing and Evacuation Company personnel despatched by a central movement control office in Headquarters Ordnance Section ComZ.

45. *RECORDS AND REPORTS.*

*a.* RECORDS AND REPORTS ON MOVEMENTS will be as prescribed in AR 850-15 and the completion of information required on Vehicle Movement Orders issued by O.O. ComZ.

46. *MISCELLANEOUS.*

*a.* EVERY EFFORT will be expended to assure the safe arrival of vehicles at ComZ depots in perfect mechanical condition for storage and issue to FF, AF and ComZ units.

## SECTION VI

## REQUISITIONING PROCEDURES

47. *REQUISITIONS.*

*a.* REQUISITIONS FOR MATERIAL WITHIN THE ComZ will be made as far as possible on QMC Form 400, as directed.

*b.* REQUISITIONS WILL BE COMPLETE as far as practicable as to:

(1) Requisitioning unit
(2) "Ship to" Address, including marking
(3) Period
(4) Part number
(5) Nomenclature
(6) "On Hand" quantities
(7) "Due in" quantities
(8) Quantity requisitioned
(9) Basis of issue

*c.* REQUISITIONS WILL BE DOUBLE SPACED on typewriter or legibly hand printed.

*d.* SUPPLY WILL NOT BE DENIED IN ComZ for IMPROPERLY PREPARED REQUISITIONS.

## SECTION VII

## PURCHASING AND CONTRACTING

48. *LOCAL PROCUREMENT.*

*a.* LOCAL PROCUREMENT WILL BE GOVERNED BY Theater regulations.

49. *ORDNANCE PURCHASING AND CONTRACTING OFFICERS.*

*a.* AN ORDNANCE PROCUREMENT OFFICER will be designated by each Base and Advance Section in accordance with existing regulations.

*b.* ADDITIONAL PROCUREMENT OFFICERS for Ordnance installations *within the Base Sections* may be designated by Base Section Ordnance Officers in accordance with existing regulations.

*c.* ORDNANCE OFFICER ComZ will be advised of all such appointments.

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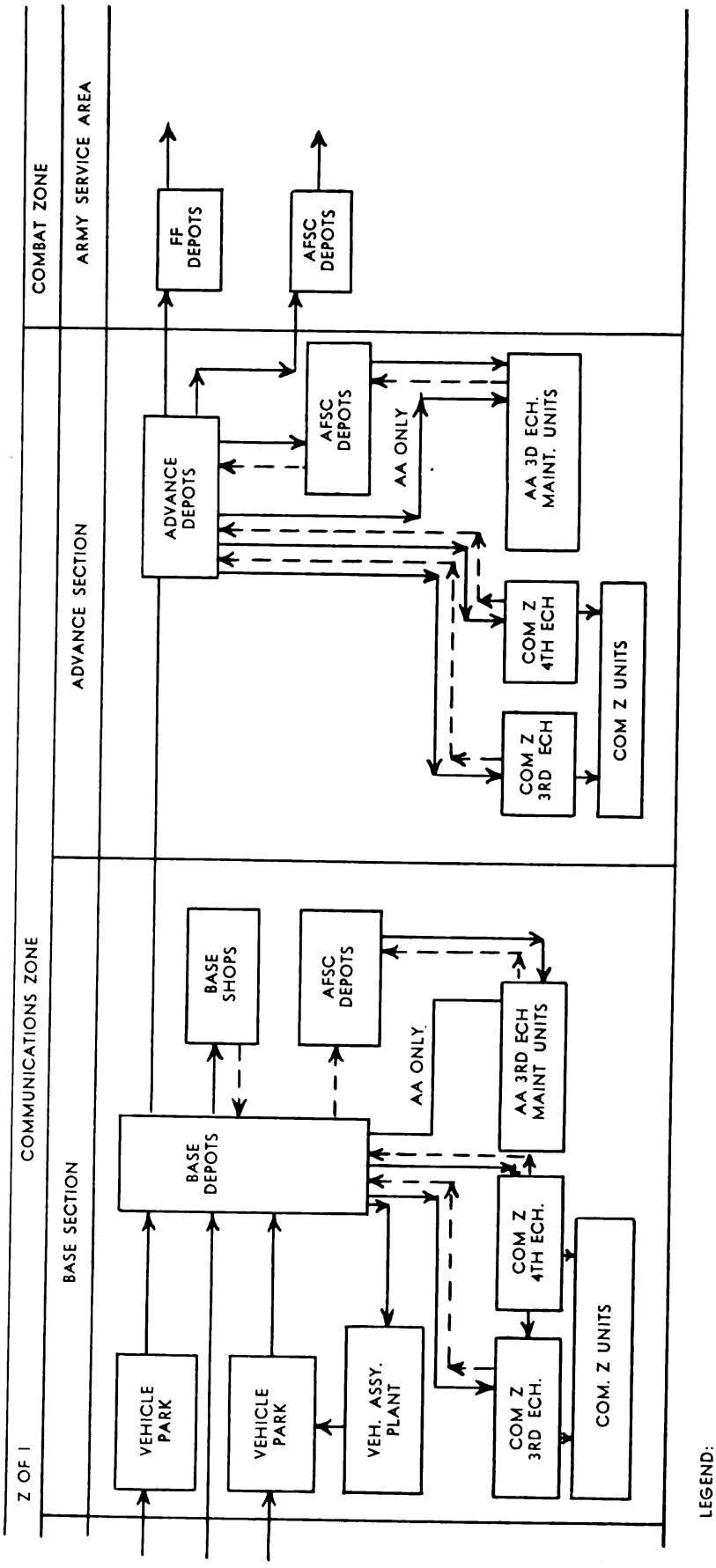
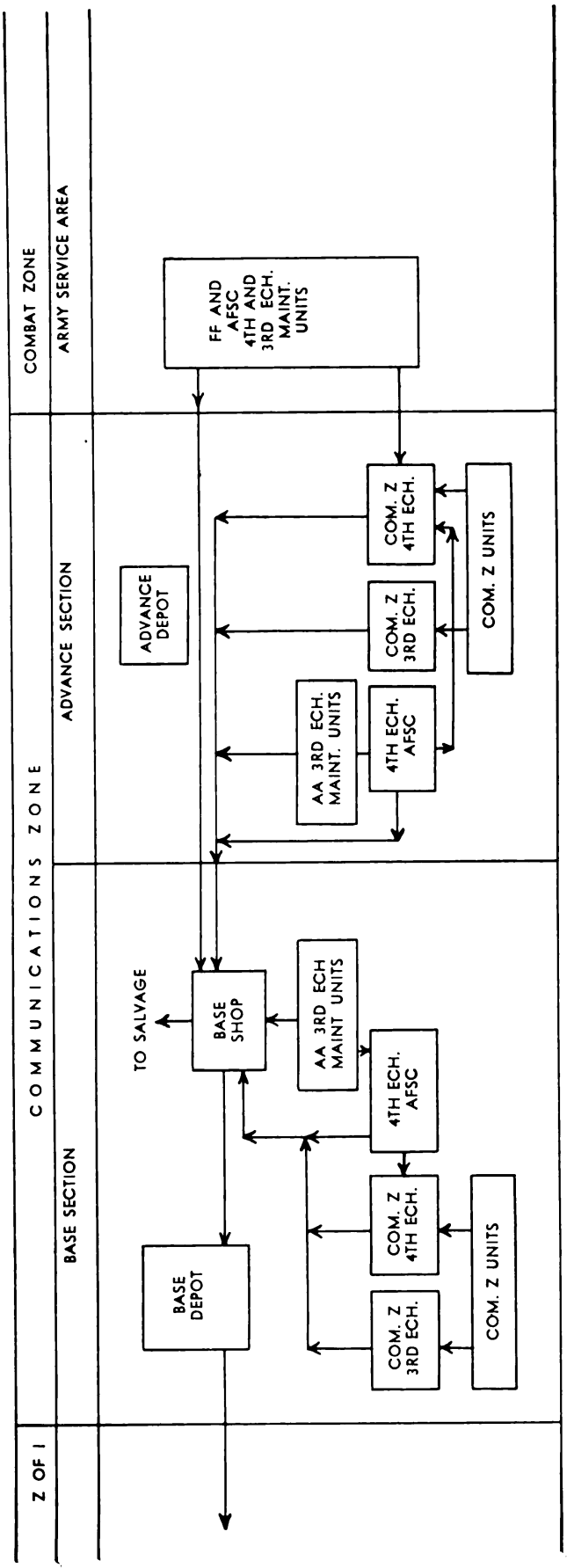



Fig. 18.

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LEGEND:
FLOW OF UNSERVICEABLE MATERIAL

NOTE: Until establishment of base shop, 5th ech. work will be evacuated to UK thru base depot.
" Excess 5th ech. work will continue to be evacuated to the UK.
" Specified items will be evacuated to UK for all work (e. g. Hydro-pneumatic recuperators).
" Specified items will be evacuated to US as directed (e. g. specially selected tires, radial engine cylinders, etc.).
" Flow of repaired material back to supply chain is shown on Appendix I.

**Fig. 19.**

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50. *COMZ ORDNANCE PROCUREMENT OFFICER.*

*a.* ComZ ORDNANCE PROCUREMENT OFFICER will be appointed to coordinate all local procurement.

*b.* ORDNANCE OFFICERS DESIGNATED as Purchasing and Contracting Officers may also be designated as Agent Officers.

## SECTION VIII

## CIVILIAN LABOR

51. *CIVILIAN LABOR*

*a.* CIVILIAN LABOR will be used to the extent of availability.

52. *REGULATIONS.*

*a.* ComZ LABOR REGULATIONS will govern the procurement, use and administration of civilian labor.

53. *ALLOCATIONS.*

*a.* ALLOCATIONS FOR USE in any particular Ordnance installation will be made by O.O. ComZ.

54. *REQUISITIONS.*

*a.* REQUISITIONS FOR CIVILIAN LABOR against these allocations will be made on nearest U.S. Regional Labor Office, using the prescribed form of civilian labor requisition, or as directed by ComZ regulation.

55. *FILLING OF REQUISITION.*

*a.* CIVILIAN LABOR REQUISITIONS will be filled by U.S. Regional Labor Office to the extent of availability.

*b.* EACH CIVILIAN LABORER turned over to an Ordnance establishment will have a standard contract form filled in by U.S. Regional Labor Office. If the employee appears to be satisfactory, requisitioning installation will sign the contract.

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# ANNEX 3

## BASE SECTION OPERATION PLAN

### ADMINISTRATIVE UNIT

**Policies.** Within the framework of pertinent AR's, Base Directives and the wishes of the Ordnance Officer the business of the Administrative Section will be conducted at the highest possible point of efficiency. To supply administrative service and assistance to all the various Units of the Ordnance Section.

**Staff.** *Administrative Officer.* Responsible for actual operations of the office, including problems of personnel, Mail & Records and Office management. Responsible for coordinating Ordnance troop movements and strengths with G-3 and the Ordnance Officer. Act in a liaison capacity between Ordnance troops assigned or attached to this Base Section and the General Staff Sections of this Headquarters on all matters other than supply and maintenance.

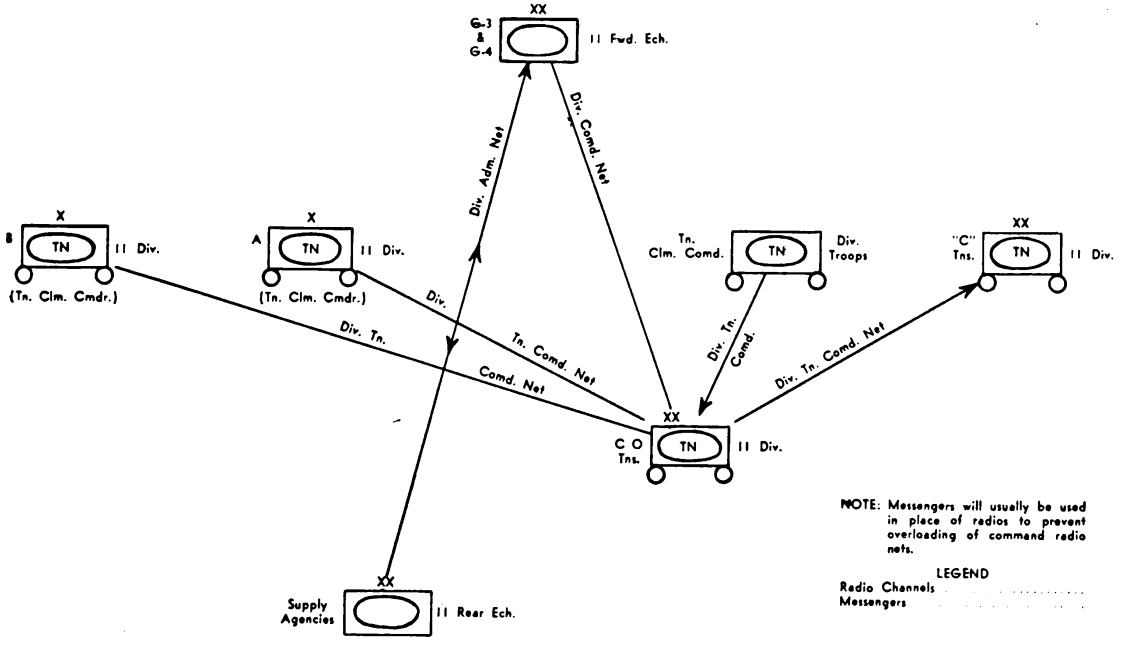



**Figure 20. Organization Chart, Administrative Unit.**

*Ass't Administrative Officer.* To be able to function as chief in the absence of his immediate superior. His duties will also include the following: Personnel Officer, Purchasing & Contracting Officer, Ordnance Section Supply Officer. In addition, he will be responsible for the actual preparation of all periodic and special administrative reports in accordance with current directives and instructions.

**Operations.** Most important, inter-headquarters: Immediately contact the Adjutant General and obtain necessary information and directives governing preparation of correspondence, and channels of communication. Set up clear and comprehensible instructions for all clerical personnel within the Section.

It is extremely important that a clear, concise picture of the correct preparation of letters, indorsements, cables, and teletypes be presented to all clerical personnel of the Ordnance Section at the earliest possible moment; and of course, subsequent changes in correspondence procedure must be brought to the immediate attention of all clerical personnel. A Mail & Records Section must be set up for registering, distribution, and control of all correspondence passing through the Ordnance Section. A central file system must be established using the Dewey Decimal System wherever practicable, and the various units of the Section should be discouraged from setting up similar file sections within the units. Care should



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be exercised in setting up the files, however, to allow for later expansion. In line with this, a library should be established containing copies of all ordnance manuals, SNL's, OFSB's, and other Ordnance publications.

Contact G-3 and G-1 to determine our responsibilities to Ordnance troops in the field relative to administrative matters, training, personnel, and reports.

Since the Administrative Unit is charged with the preparation and submission of periodic Ordnance troop disposition and strength reports, as well as special administrative reports of various natures, it is necessary to establish definite routines for the submission of such information to the Ordnance Section by the field units and for the consolidation and transmittal of these reports to G-3, G-1, or other appropriate staff sections or higher headquarters. Conversely, it is the duty of the Administrative Unit to keep the field units informed on all matters of administrative importance which are of interest to their internal operation.

The Administrative Unit, through the Chief Clerk, will be responsible for personnel administration of the enlisted men in-so-far-as their connection with the Section is concerned; i.e., recommendations for promotions, compliance with training directives, passes, and military discipline, and courtesy.

Purchasing & Contracting activities will be accomplished by the Administrative Unit in cooperation with the GPA of the Base Section. The Ordnance Purchasing & Contracting Officer will be familiar with Reciprocal Aid procedure and local facilities for obtaining supplies.

There should be one vehicle available (preferably a "Jeep") for the combined use by the Administrative Officer and the Purchasing & Contracting Officer to be used for contact work with the field units regarding administrative matters and for Purchasing & Contracting activities.

**Check List For Administrative Officer.** 1. Assign personnel within the Ordnance Section, and to specific jobs in the Administrative Unit.

2. Set up a Mail and Records System.
3. Ascertain what administrative reports are to be submitted and obtain model forms and pertinent instructions and directives.
4. Set up directives to field units for submission of reports.
5. Establish Purchasing & Contracting in accordance with current directives.
6. Make arrangements for an inter-Ordnance messenger system and coordinate this with the Base messenger service.
7. Make provisions for an Ordnance library.

## GENERAL SUPPLY UNIT

**Policies.** *Issue and Control of Major Items.* The problems which arise on the issue of Major Items are so many and varied that it is impossible to lay down an iron-clad policy.

At the present, as in the past certain priorities are set up by theater which must be followed. *First Priority* on issue of all Major Items is to replace battle losses. Battle losses not only have priority in issue but also in servicing items to be issued as battle losses. *Second Priority* is the filling of alerted units to full T/BA. Not only are alerted units equipped under priority number two but they are equipped in order of sailing date or date they are to actually go into combat area. This is to prevent units that are alerted at a later date to be fully equipped while units which are really "hot" having to go to combat area less certain essential T/BA equipment.

Issue to units other than those that are alerted must be in accordance with need, number of particular items now in hands of each unit, number in depot stock, and sound judgment. Many non-alerted units will be short items which will not imperil duties of that unit, but if items are issued, it will imperil stock levels for future needs—equipping of alerted units, and/or filling of battle casualties.

While it is impossible to even guess at the supply to be kept in stock to meet battle casualties, SOS sets up a percentage figure to be used as a guide for depot stock. In the case of critical items it is doubtful if this figure will ever be reached in depot stock, and it is therefore more essential that no issue is made to units from that stock whose priority or need does not justify issue.

Issuance of vehicles or other Major Items on Memo Receipt is and always has

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been a headache and should be discouraged as much as possible. Issues on Memo Receipt should first have approval of G-4 of the Base Section. M/R issues are made on 30 day renewable basis only. Special M/R form is shown as inclosure #2.

Status reports are required from each unit under the Base Section. These are consolidated into one report which is forwarded to SOS.

Status reports serve as requisitions under our present plan which eliminates much paper work and extra filing. Requisitions are required only in transient units and in emergencies. (A copy of Ordnance Materiel Status Report requested from units is shown as inclosure #3.)

When Status reports are received the items are immediately entered in a book system set up in this office, sample form shown as inclosure #4. Units are entered collectively, i.e., all hospital units together, Ordnance units together, and so forth. In this way the status of equipment in any particular branch of Service can easily be computed. Also it is easy to check on needs of unit should their Supply Officer or other person contact you, and it provides for an easy method of checking any particular item to see, according to figures, just what unit needs that item most. Status reports can be used in conjunction with spare parts section to determine how many vehicles, etc. for which to order spare parts. This set of records provide a quick source of information for many problems and are indispensable as far as General Supply is concerned.

Issues of all Major Items are rigidly controlled by this office and higher headquarters and are released only on Shipping Orders to the depot. Copy of Shipping Order is shown as inclosure #5.

The depot reports status of stock on depot forms, copies of which are shown as inclosure #6 and #7. In this way we know at all times just what Major Items are in depot stock, the exact condition and quantities of each. Two different forms are used, one for Vehicles (both General Purpose and combat) and Artillery, and the other includes the remaining Ordnance items of issue. The latter is composed mainly of A, B, and F Groups, but wheeled Artillery pieces from A Group are reported on the Vehicle Park form. Inventories of depot stocks are necessary at all times and should be continuous as this serves as a double check to depot stock record cards and status reports. To operate efficiently, close coordination and liaison work with the depot is an absolute must. Telephone calls between this office and the depot are necessary but should be kept to the lowest minimum possible. It has proven best to warn depots of important shipments, by telephone, as soon as the information reaches our office. In many cases all the necessary information has been given by phone and the shipment is on its way before the depot actually receives the Shipping Order from our office.

As only serviced vehicles or artillery pieces are issued it is essential that the report from the Vehicle Park contain information as to what vehicles are serviced, under what class they fall—A or B, and what vehicles are deadlined. Our present form is made to give all of this information plus items on M/R and totals. This form has proven very satisfactory and is essential for efficient operation. Too much emphasis cannot be placed on the fact that the efficiency of the General Supply Office is determined by the Efficiency of the depots under its control.

Unit Supply Officers should be encouraged to check occasionally with General Supply Section, Ordnance Office, to facilitate issues as phone communications have proven inadequate as far as contacting units is concerned. This makes for a more congested office but a better method has not been worked out to date.

Officers in charge of issue of Major Items as well as spare parts must work in close coordination with the Ordnance Section Transportation Officer to see that shipments due in are received and shipments due out move promptly.

The entire General Supply Section is so closely woven that each officer must at all times work in close contact with each of the other officers. Good liaison between General Supply Section, Maintenance, and Ammunition Sections is an important factor in the success or failure of completing our mission.

*Issue of Spare Parts.* Issues of spare parts, and accessories other than those controlled by the Major Items Section, of the Ordnance Section of the Base Section, and cleaning and preserving materials, will be made in accordance with the following plan:

a. By requisition direct to depot for initial allowance.

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b. By direct exchange replacement of the unserviceable item at nearest Ordnance organization.

c. By presentation to Depot of reports of survey, fair wear and tear certificates. statement of charges, or approved tally-in from Maintenance company stating inability to repair or replace the unserviceable item.

Priority for issue to units will be:

a. First priority: Alerted units to fill T/BA.

b. Second priority: On a proportionate basis to Air Force Depot, Base Shop and Base Section Ordnance Maintenance units based on back-order requisitions on hand from these units.

Issues to Air Corps units in Staging Area will be as follows:

a. Air Corps Maintenance units can draw parts direct from Depot with certificate that items are needed for emergency deadline use.

b. Air Corps units, not Ordnance, will draw supplies in accordance with procedure outlined in paragraph 1 above.

Non-expendable stove parts will be issued on an exchange basis by Ordnance Maintenance Companies. Expendable stove parts must be drawn from Quartermaster Depots.

Issues to French, British, and the U. S. Navy will not be made except upon orders of Ordnance Section, of the Base Section. All such issues will be made in accordance with policy outlined in attached directives. (Inclosure #8.)

Ordnance is now charged with supplying all tires and tubes for all equipment peculiar to other services, i.e., Tow-Motors, Tractors, Graders, and so forth. It is also our responsibility to supply maintenance parts for all prime movers and vehicles on which special equipment is mounted. Quartermaster Refrigeration Vans, Signal Trailers, and so forth.

**Staff.** *General Supply Officer.* Advises the Ordnance Officer in Ordnance matters pertaining to General Supply. This applies particularly to Ordnance Technical problems and recommendations as to plans for Ordnance General Supply activities. Anticipates requirements of troop units for Ordnance supplies. He is responsible for operation of Ordnance Depot facilities, maintaining depot stocks at prescribed levels, maintenance of adequate and accurate records as to the status of Ordnance Class II and IV supplies.

Ass't General Supply Officer. Assists the General Supply Officer in the formation and execution of approved operating policies and procedures.

*Priorities of Issues Officers.* Control the issues of Ordnance equipment based on; priorities established by higher headquarters, status of equipment in the unit. status of depot stocks. He maintains accurate record of status of equipment in the hands of troops within the Base Section. Controls the issues of Ordnance equipment to French and British based on authority received from higher headquarters and coordinates with the Administration Section on Lend-Lease reports to higher headquarters. Details as to policies and procedure adhered to by this Officer are given in POLICIES (above), both in Issue and Control of Major Items, and Issue of Spare Parts.

*Transportation Officer.* Coordinate the incoming and outgoing shipments of Class II and IV Ordnance material with the Transportation Section of the Base Section. Advise Unit Chief of tonnage requirements for movement of Class II and IV Ordnance. Outline of procedure followed is given in "OPERATIONS."

*Depot Officer.* This officer establishes and operates all depot installations. Detailed outline of duties of Depot Officer and the functions of units under his control are shown in "Depot Functions."

*Ordnance Technical Advisor to Depot Commander.* This Officer serves as technical advisor to Depot Commander with regard to condition and sufficiency of parts and equipment in connection with major items. He is responsible for the mechanical condition of major items within the depot and initiates all action requiring the services of Ordnance Maintenance personnel on depot stocks.

*Ordnance Provision Officer.* Maintain Depot stocks at prescribed levels. Duties of Ordnance Provision Officer as well as functions of the Ordnance Provision Office are shown in "Depot Functions."

**Operations.** *Transportation Unit.* The mission of this unit is to coordinate with our Ordnance Depot and Transportation Section of the Base Section all incoming.

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outgoing and trans-shipments of Class II and Class IV Supplies to or from the Base Section.

SOS Ordnance Section authorizes all issues and transfers of stock by cable, letter, shipping, or transfer order. Shipping Order and Transfer Order are the most commonly used. SOS Transportation Section authorizes transportation for the shipment and specifies the method of shipment to be used.

On *Incoming Shipments* we receive copies of Shipping Orders or Transfer Orders from the Ordnance Section SOS, notifying us that stock is being sent to us from another Base Section and also for what purpose. It may be for our Depot stock or for reissue to a designated unit. SOS Transportation Section sends up a copy of a Shipping Order, notifying us how the shipment will arrive, giving us car numbers for rail shipments, vehicle and convoy numbers for overland shipments, and plane and flight numbers for Air Transportation. The Ordnance Officer of the Port sends us an extract of Ordnance materials from the Ships Manifests as advance information on water shipments from the States. All this information, and copies of Shipping Orders and Transfer Orders are sent to our Depot and a check is made when shipments do not arrive in ample time. When shipments are received the Depot sends us a report on a "Shipment Received" copy shown as inclosure No. 11, form stating how and when shipment was received. A copy of this report is sent to G-4 of the Base Section. When requested to, or in cases of receipt of special shipments, we notify both the consigner and SOS by cable.

On *Outgoing Shipments* we receive copies of Shipping Orders or Transfer Orders from Ordnance Section SOS, directing us to ship certain stock to another Base Section or unit. SOS Transportation Section, sends us a copy of a Shipping Order designating the type of transportation to be used. Transportation Section of the Base Section is notified when shipment is ready to go. Transportation Section makes arrangements for cars for rail shipments and trucks for overland shipments. For Air Freight shipments, an "Air Freight Delivery Ticket," copy shown as inclosure No. 12, is prepared, and a priority for Air Freight space is obtained. Copies of the Air Freight Delivery Ticket and Priority Sheet, (see inclosure No. 13) is sent to the Depot to accompany the shipment to the Airport For Water Shipments, a DSSD, (copy shown as inclosure No. 14) is made, giving the number of boxes, weight, and cubic feet. Two copies of this form are sent to Base Water Transportation to be used as a pre-loading plan. Copies are also sent to the Depot and Shipment is held until called for by the Port. When shipments leave, the Depot sends us a Report on "Shipments Made" form (see inclosure No. 15), stating how and when shipment is made. A copy of this report is sent to G-4 Section of the Base Section. A teletype is sent to consignee and also copy to Ordnance Officer, SOS, upon departure of all shipments. In cases of Special Shipments or when requested a cable is sent instead through Command Channels.

Records maintained within this Section are:

Transfer Orders IN (Ordnance)
Transfer Orders OUT (Ordnance)
Shipping Orders IN for Reissue (Ordnance)
SOS Shipping Orders IN (Transportation)
SOS Shipping Orders OUT (Transportation)
DSSD Shipments
Air Freight Shipments
Manifests (Water shipments due in from the States)
Vehicles Due IN
Rail Cars Due IN
Daily Tonnage Reports

All of our files are cross-referenced as information is received. The Transfer Orders IN and the Transportation Shipping Orders IN are noted with the information as to how and when the shipments were received. The Transfer Orders OUT, Ordnance Shipping Orders OUT and Transportation Shipping Orders OUT are dated with the information as to how and when the shipments were made. Any other information that concerns these shipments is also noted, such as DSSD's, Air Freight Tickets, or Cables. A close check is kept on vehicles Due IN and Rail Cars Due IN File for over-due shipments. Vehicle numbers must be closely checked to prevent units from trading vehicles enroute. Weekly and monthly Tonnage Reports are made out from the Daily Tonnage Reports received from the

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Depot. (See inclosure No. 16.) It has been our experience that by keeping our files cross-referenced as such, information when required can be very easily ascertained.

**Check List For General Supply Officer.** 1. Based upon troop strength to be served and supply level to be maintained, make recommendations to Base Ordnance Officer as to Ordnance Units required to operate supply installations.

2. Select Executive and Depot Officers, Chiefs of Priority of Issue, Administrative and Transportation Sections.

3. Outline to entire staff the mission to be performed by General Supply Unit.

4. Determine and relay to Ordnance Provisioning Officer the number and type weapons to be served and the supply level to be maintained.

5. Initiate steps to obtain necessary office supplies and equipment.

6. With Base Ordnance Officer and Ordnance Depot Officer, select locations of Depot installations.

## ORDNANCE PROVISION OFFICE

**Policies.** As the requisition section for procurement of supplies for a Base Section Depot is now supplanted by a Provisioning Office in which the initiative for procurement of supplies is centralized, it is the mission of this office to maintain the proper supply level, as fixed by higher authority for the number and type of troops to be serviced. This stock level must be maintained at all times in order to insure a smooth flow of supplies to the using arms. Such a level of supply is not fixed by higher authority as to definite quantities to be maintained in stock, but as a definite number of days of supply. Quantities to be stocked by a Depot are left to the discretion of the Base Ordnance Officer upon recommendations of the Chiefs of Supply and Maintenance and the Ordnance Provision Officer, subject to such review as may be deemed necessary by the Chief Ordnance Provision Officer of the theater concerned. Lowering of this supply level in Depot stocks will cause a shortage in the hands of troops thereby hampering them in performing their missions. Also, allowing Depot stocks to exceed this supply level will often times cause a shortage to develop in other Base Sections, and in any event cause a waste of time, labor and transportation facilities in correcting such a condition.

**Staff.** In order to properly carry out above policies, certain commissioned and enlisted personnel are necessary. Such personnel must be highly trained in the function of stock status control. They should be familiar with all phases of Depot operations, and as much as possible with initial procurement procedure and method of supply from points of manufacture to final destination. Experience has shown that the average officer or enlisted man who is familiar with Depot Stores Procedure of the Ordnance Provision System requires from six weeks to three months to properly train under a competent instructor. If available, the following personnel should be allotted exclusively for use of this office.

*Ordnance Provision Officer.* Responsibility for the smooth and efficient operation of the Provision Office is vested in the Provision Officer. His work is closely coordinated with the General Supply Section of the Base Section Ordnance Office, and, insofar as possible, detail office function should be delegated to assistance, thus leaving him free for matters relating to supply as a whole for the Base Section.

*Assitant Provision Officer.* All routine reports and office procedure will be referred to the assistant O.P.O. for approval. His duties will be such as prescribed by the O.P.O.

*Summary.*

a. Officers.
   1 Captain—Ordnance Provision Officer
   1 First Lieutenant—Assistant

b. Enlisted Men.
   1 T/Sgt—Chief Clerk
   7 S/Sgt—Chief of Sections
   3 T/3—Assistants to Chief of Sections
   4 T/4— " " "
   12 T/5—Typists

*Note.* Conditions or lack of personnel may necessitate consolidation of two or more groups sections as outlined herein. The number of personnel is also governed by the size of the operation concerned. In foreign theaters where the population

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is friendly to occupying troops, opportunity should be taken to utilize as far as possible civilian employees. Experience has shown that at least fifty per cent of enlisted personnel can be replaced by civilian employees if such employees are carefully selected. These civilians would replace assistant section chiefs and clerk typists.

*Group Sections.* In order to delegate the responsibilities of the detail functions of the Provision office it is necessary to sub-divide the personnel therein into group sections as follows:

a. *A & B Groups*

| | | |
|---|---|---|
| 1 Chief of Section | (323) | S/Sgt |
| 1 Assistant Chief of Section | (323) | T/3 |
| 1 Clerk Typist | (405) | T/5 |

b. *C & D Groups*

| | | |
|---|---|---|
| 1 Chief of Section | (323) | S/Sgt |
| 1 Assistant Chief of Section | (323) | T/4 |
| 1 Clerk Typist | (405) | T/5 |

c. *F Group*

| | | |
|---|---|---|
| 1 Chief of Section | (323) | S/Sgt |
| 1 Assistant Chief of Section | (323) | T/4 |
| 1 Clerk Typist | (405) | T/5 |

d. *G Combat*

| | | |
|---|---|---|
| 1 Chief of Section | (323) | S/Sgt |
| 1 Assistant Chief of Section | (323) | T/3 |
| 1 Clerk Typist | (405) | T/5 |

e. *G Tactical*

| | | |
|---|---|---|
| 1 Chief of Section | (323) | S/Sgt |
| 1 Assistant Chief of Section | (323 | T/3 |
| 3 Clerk Typist | (405) | T/5 |

f. *H, J, N, Groups*

| | | |
|---|---|---|
| 1 Chief of Section | (323) | S/Sgt |
| 1 Assistant Chief of Section | (323) | T/4 |
| 1 Clerk Typist | (405) | T/5 |

g. *K, M, P, O Groups*

| | | |
|---|---|---|
| 1 Chief of Section | (323) | S/Sgt |
| 1 Assistant Chief of Section | (323) | T/4 |
| 1 Clerk Typist | (405) | T/5 |

The remaining typist (405) (T/5), will act as personal typist and file clerk for the Provision Officer. The Lieutenant and Chief Clerk will assist the Provision Officer in such ways as he may direct.

*Chief Clerk.* The duties of all Group sections will be coordinated by the Chief Clerk. All reports will be checked by him before submission to the O.P.O. for approval. Insofar as possible all information concerning office personnel should be disseminated to them through the Chief Clerk. Routine office matters will also be handled by him.

Group Sections. The efficiency with which a Provision Office functions depends entirely upon the efficiency with which each Group Section performs its duties. The Group Section depends entirely upon the energy, foresight, and judgment of the Group Section Chief. Therefore, it is mandatory that this man be selected with great care. Each Group Section is charged with maintaining the review sheet records of its particular section up to date, posting to review sheets any and all information obtained from sources other than the stock records which affect the status of stock in the Base Section. The Section is further required to run all reviews of stock records at such times as are specified in the Schedule of Reviews. The preparation of Abstracts of Reviews, Special Abstracts of Reviews, and Overages Reports are also the responsibilities of the Group Section.

**Operations.** Operation and procedure for the Provision office will be that as prescribed by Ordnance Provision System Regulations (Revised), dated 23 December 1942. (Editors Note: See Ordnance General Supply chapter 10, Vol. II).

**Check List For Provision Officer.** 1. Obtain information as to number and type of troops to be served and supply level to be maintained.

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2. Select necessary personnel and set up records for each section.
3. Submit without delay to higher headquarters initial depot stockage requirements.

## AMMUNITION UNIT

**Policies.** After the establishment of the Ammunition Unit, it will be necessary to write an ammunition supply plan for the approval of the Ordnance Officer. It will also be necessary for the Ammunition Officer to establish a policy for the ammunition depot commanders, or for the Ordnance Officers of the general depots under base control, if the Base Section is divided into general depots.

A policy with regard to supplying Allied Forces in the area under Base Section control also must be worked out.

An understanding should be reached with Transportation on the handling of incoming and outgoing shipments. A policy acceptable to both Ammunition Unit and Transportation Section should be set up and thereafter adhered to. This should also be coordinated with the Ammunition Officer of the troops being supported.

**Staff.** *Ammunition Officer.* The function of the Ammunition Officer is to see that ammunition is available and ready for supply to the using troops that the Base Section is supporting. It is his responsibility to see that the proper levels of supply are maintained with the Base Section.

*Assistant Ammunition Officer.* The Deputy Ammunition Officer functions in the absence of the Ammunition Officer. He sees that requisitions are submitted at proper times to maintain flow of ammunition to Base Section to maintain Base Section supply levels, and proper flow of ammunition to troops. He sees that all correspondence is handled correctly and without delay, and that reports are submitted on time.

*Renovating and Salvage Officer.* Responsible for collection and disposal of all ammunition to be salvaged, destroyed or renovated.

*Depot Officer.* The Depot Officer is responsible to Ammunition Officer to see that depots are properly run, that ammunition is properly stored and cared for.

*Records Officer.* This officer is responsible for the keeping of all records in the Ammunition Office, and for the prompt submission of all periodic and other required reports.

*Bomb Disposal Officer.* This officer is responsible for coordinating all Bomb Disposal units attached or assigned to the Base Section for duty. Maintain security of Base Section. Collect intelligence on captured materiel for dissemination and reporting to the Chief of Ordnance. Participate on Staff of Base Section in matters pertaining to Bomb Disposal. Conduct Bomb Reconnaissance Training to all troops in Base Section area.

**Operations.** After the Ammunition Unit has been organized and the personnel instructed as to their duties within the Unit, the Ammunition Officer, accompanied by the Depot Officer, should inspect any ammunition installations that may have already been established before the activation or arrival of the Base Section. He should study these installations as to their adequacy, location, and availability.

If no new installations have been established, or present installations are inadequate, he should tentatively select new sites, at all times bearing in mind transportation facilities. Transportation must at all times be considered. During actual operations, ammunition must be moved rapidly if the supply is to be consistent with the ammunition expenditure. After sites have been approved by the Ordnance Officer, depots, dumps or ASP's are then established.

The Ammunition Officer should then contact the port (or ports) ordnance officer and establish a working procedure for receiving ammunition from the docks as well as shipping ammunition to the docks. He should also establish contact with Ammunition Officer of troops being supported.

Note: Ammunition supply is treated in Chapter 9, Vol. III.

**Check List for Ammunition Officer.** 1. Obtain troop strength and weapon strength of troops to be supported.
2. Ascertain ammunition levels to be maintained.
3. Submit requirements of ammunition troops to Ordnance Officer.
4. Assignment of officers and men within unit.
5. Organization of sections within the unit.
6. Requisition of supplies and equipment.

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## MAINTENANCE UNIT

**Policies.** The Ordnance Maintenance policy should be set up as soon as possible after the formation of the new Base Section. It must be based initially on the most complete information available as to the scope of the operation involved as well as to the number, type and disposition of the troops to be maintained. It must be broad enough to accommodate the constantly changing picture as to number of troops supported as well as to the number of Ordnance Maintenance Units available for the operation. It must anticipate the demands of other services, particularly, QM Salvage, on both manpower and equipment. It must be flexible in order to meet the changing military situation.

A policy for supply of parts to organizations within the Base Section must be set up in coordination with General Supply. It has been found that a Class II Base Depot is unable to carry the load if it attempts to make direct issue to each organization within the Base. This difficulty may be overcome by assigning a group of organizations to each Ordnance Maintenance Company for processing requisitions for parts and maintenance. The Ordnance Maintenance Company then consolidates its requisitions and deals with the Depot for its customers. This method proved successful with almost five hundred (500) organizations operating through thirteen (13) Ordnance Maintenance Companies in a Base Section operation. The same problem will be met when dealing with organizations in transit through the Base Section. All transient units should be assigned to specific Ordnance Maintenance organizations for parts and maintenance as they arrive in the Base Area.

**Staff.** *Maintenance Officer.* The Maintenance Officer is in charge of the Maintenance Unit of the Ordnance Section. It is his duty under the Ordnance Officer to set up maintenance policies within the Base Section. He makes recommendations for the disposition of maintenance troops throughout the Base Area. He must maintain liaison with supported units (Army or Corps) and arrange proper evacuation of material to the rear for salvage or repair.

*Assistant Maintenance Officer.* The Assistant Maintenance Officer assists the Maintenance Officer in the operation of the Maintenance Unit. He is specifically charged with the supervision of the automotive maintenance through the Base Section. He follows up reports required by higher headquarters.

*Armament Officer.* The Armament Officer supervises the maintenance of all weapons, and sees that contact (inspection and repair) parties are in close contact with units throughout the Base Section. He maintains liaison with supported units through Unit Order Officer to follow proper distribution of technical information.

*Reclamation and Salvage Officer.* It is the duty of the Reclamation and Salvage Officer to supervise the flow of Salvage of American and captured material from the Combat Zone to the Base Section salvage and repair echelons. He is responsible for the evacuation to the Zone of Interior of repairable equipment which is to go to arsenals in the Zone of Interior.

*Records and Transportation Officer.* Records and Transportation Officer is responsible for office records in Maintenance Unit and preparation of reports to higher headquarters. He keeps up all graphs and work charts. He is responsible for transportation required for evacuation of equipment.

**Operations.** Maintenance Units within the Base Section must be set up where they can most expeditiously perform the service required. Field units must be as close as possible to the greatest number of supported organizations. All traffic arteries should be covered by road service parties. Base shops must be located at traffic centers as near to the heaviest load as possible. Facilities must be provided for all weather operations, both for field and base shop organizations. All operations must be closely coordinated with General Supply for the purpose of securing necessary parts and equipment. Field units must be prepared to move their location on short notice to fit changes in the over-all maintenance load.

**Check List for Maintenance Officer.** 1. Ascertain what organization will be supported.

2. Estimate and request number and type of Ordnance Maintenance Companies that will be required for the operation, present and future.

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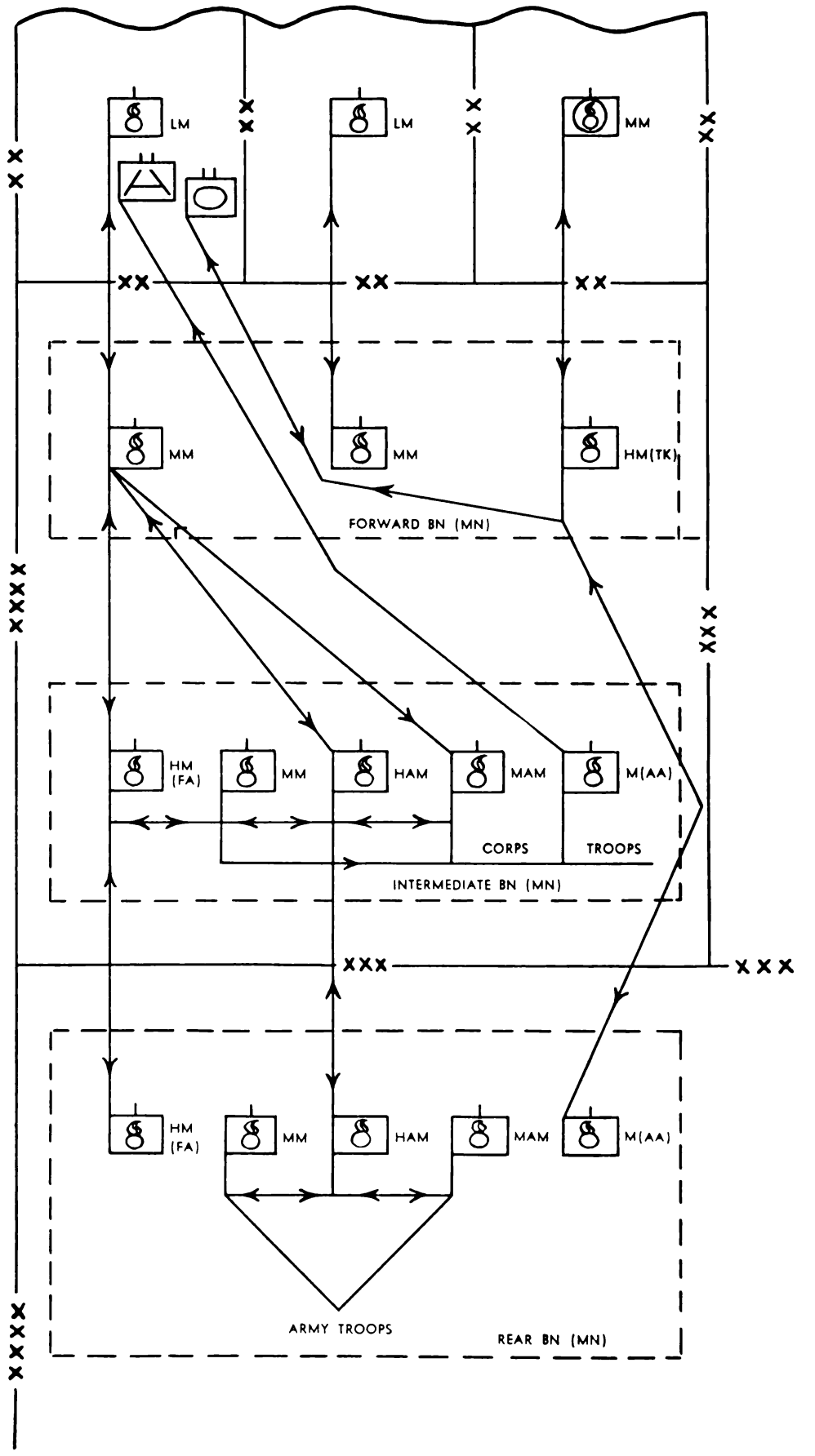



Figure 23. Typical Layout of Army Ordnance Maintenance.

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3. Select and secure officers and enlisted personnel.
4. Requisition supplies and set up office.
5. Make contact with corresponding number in supported unit. Discuss locations, coordination, and operating policy.
6. Select proper location for Ordnance Maintenance Companies finally assigned.
7. See that all officers in unit become familiar with all operations as rapidly as possible.
8. Coordinate with General Supply on critical types and quantities or parts to receive emphasis on General Supply's Class II requisitions.

**Maintenance Forms.** During E.B.S. operations in North Africa, the following forms were devised to supply the Base Section Headquarters with operational information:

*Weekly Repair Report (Inclosure #1).* This form was used to show the maintenance load of each company and of the base shop. The information was useful in balancing the load among the various companies.

*Weekly Salvage Report (Inclosure #2).* This report was put in use to pick up those Ordnance Major Items that were evacuated from the combat troops and to show their disposition.

*Weekly Report on New Material Serviced (Inclosure #3).* This is a report used by the Ordnance companies that were detailed to service new items before issue to the combat troops. This report was used when the maintenance units were operating their own Vehicle and Artillery Depot Parks. After the Motor Parks were placed under Depot personnel, the maintenance units then reported to the Depot on forms devised by the Depot.

*Weekly Wrecked Vehicle Report (Inclosure #4).* A report devised to supply the Transportation Section, Base Section, with information regarding the number of trucks being wrecked by their QM Truck Battalion and also to aid the various organizations in locating their lost vehicles.

*Report of Technical Inspection Teams (Inclosure #5).* A report to give the organization commander a summary of the inspection made on his vehicles and also to supply this headquarters with progress of the inspection teams and deficiencies in first and second echelon maintenance noted.

Since the first of July, 1943, Hq. SOS has called for innumerable reports and on the basis of these reports a master report known as the *Ordnance Maintenance Status Report (Inclosure #6)*, is being used on a weekly basis. As this report covers all necessary operational information required by this officer all previous reports have been rescinded.

**Publications.** The following publications are required by the Maintenance Unit:

| | |
|---|---|
| Standard Nomenclature Lists | 1 set |
| Technical and Field Manuals | 1 set each |
| Tables of Equipment | 1 set |
| Tables of Organization | 1 set |
| Modification Work Orders | 1 set |
| Army Regulations (850 series) | 1 set |
| Ordnance Field Service Bulletins | 1 set |
| Ordnance Storage & Shipment Chart | 1 set |
| Ordnance Field Technical Bulletins | 1 set |
| Technical Bulletins | 1 set |
| Training Circulars | 1 set |

Any information applicable to Ordnance prepared by Intelligence or any other service.

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ORDNANCE MAINTENANCE STATUS REPORT

Organization ----------Period From----------To----------

Section ----------Page No. ----------of----------p p.

TO: Ordnance Officer, SOS NATOUSA, APO 750, U. S. Army.

| Major Item or Assembly | Items Disposed of This Period | | | | On Hand Unserviceable At End of Period | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Over 7 Days | | |
| | Repaired | Evacuated Elsewhere | Stripped for Parts | Received This Period | Not Repairable With Available Facilities | Under 7 Days | Lack of Parts | Other Reasons | Total Columns |
| (A) | (B) | (C) | (D) | (E) | (F) | (G) | (H) | (I) | (J) |
| | | | | | | | | | |

----------
(Organization)

WEEKLY SALVAGE REPORT

Period of Report From----------To----------

| Item | Serviced or Repaired and Delivered to Depot | Scrapped or Stripped for Parts | Evacuated to Other Areas | On Hand (Classified and Unclassified) |
|---|---|---|---|---|
| | | | | |

----------
(Organization)

WEEKLY REPORT ON NEW MATERIAL SERVICED

Period of Report From----------To----------

| Item | Completed | Uncompleted on Hand | Remarks |
|---|---|---|---|
| | | | |

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WEEKLY WRECKED VEHICLE REPORT

ORGANIZATION.....

Period From.....to.....

| Vehicle | Registration Number | Location | Date Recovered | Disposition | Organization Markings | Remarks |
|---|---|---|---|---|---|---|
| | | | | | | |

(ORGANIZATION)

REPORT OF TECHNICAL INSPECTION TEAMS

Unit Inspected ..... Date Inspected .....

Number of vehicles in unit .....

Number of vehicles inspected .....

General Condition of vehicles inspected .....

.....

.....

.....

.....

Condition of unit maintenance records .....

.....

.....

Was adequate lubrication equipment and supply of approved lubricants on hand?

.....

.....

Recommendations and Remarks .....

.....

.....

.....

.....

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.....

.....

Inspecting Officer

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# ANNEX 4

# AN ARMY ORDNANCE PLAN

## SECTION I

## GENERAL

1. **Purpose.** The purpose of these instructions is to define the responsibilities and to outline the operations of Army Ordnance Service.

2. **Command and Organization.** *a.* In accordance with Chapter 7, FM 9-5, amended by Change 2, dated 7 September 1943, all non-divisional Ordnance units are commanded by the Army Ordnance Officer, except when attached to Corps or Divisions when command is exercised by the Ordnance Officer of the senior commander.

b. Tactical and administrative control of Ordnance units normally will be through Ordnance groups in accordance with directives from the Army Ordnance Officer.

c. The battalion commanders are responsible for administration of attached units. Company records will be maintained separately and administration so conducted as to permit immediate transfer of companies to other battalions. Unattached Army Ordnance organizations will operate under the Army Ordnance Officer.

d. Maintenance and Supply units are organized as follows:

(1) Forward Battalions in direct support of Corps. Composition to vary according to composition of Corps. These battalions will remain mobile at all times. No work should be undertaken by Medium Maintenance Companies which cannot be completed within 24 hours or by Heavy Maintenance (Tank) Companies which cannot be completed within 43 hours after arrival within the shop area. The time requirement will vary with the tactical situation at the discretion of the battalion commander. Maximum use will be made of major item replacement.

(2) *Intermediate Battalions* support forward battalions and Corps and Army troops within the area. These battalions will remain as mobile as possible. They should be able to accomplish a tactical move in two (2) days without assistance by "leap frogging" sections. Medium companies in these battalions will remain mobile, as possible replacement for forward battalions.

(3) *Rear Battalions* are charged with fourth echelon maintenance of forward units, and Army and reserve units in the area. Normally this battalion will not move except when Army rear boundary is moved and will require assistance from QM Truck Companies if it is to be moved within a reasonable time.

(4) *Forward Depot Companies.* These are of two (2) types, "Armored" and "General."

(a) *Armored Depot Companies* will support armored divisions, tank battalions, tank destroyer battalions, and mechanized cavalry squadrons only. Parts will be stocked for these units only. Normally these companies will be located close to the rear boundary of armored divisions beyond the range of light artillery and masked from medium artillery. Camouflage is essential. Dispersion will be normal. Maximum turn-around for any unity served should not exceed 60 miles. These companies will remain mobile.

(b) *General Depot Companies.* These companies will operate similarly to armored depot companies except that they will stock parts for all except armored units.

(5) *Main Depot Companies* will be of three (3) types: "General Purpose," "Combat Vehicle" and "Armament."

(a) *General Purpose Depots.* This depot is relatively immobile it will stock parts for general purpose vehicles, parts common, commercial tires of all types, cleaning and preserving materials, and tools. Its primary functires of all types, cleaning and preserving materials, and tools. Its primary function is to service forward Depot Companies and Army troops. It will make use of available vertical and lateral road net. Railroad siding space is desirable but not essential. Personnel may be augmented with civilian labor.

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(b) *Combat Vehicle Depots.* This Depot Company will stock parts for combat vehicles. In all other respects it is similar to the General Purpose Depot.

(c) *Armament Depots.* This Depot Company will stock parts for armament. In all other respects it is similar to the General Purpose Depot.

(6) Diagrams of typical Army maintenance and supply layouts are in Appendices II and III.

3. **Operation.** a. To expedite reaction to tactical and service requirements, Ordnance troops may be moved by the following Ordnance Commanders:

(1) By the Company Commander of a company in direct support of a division: the section parties of his company within the divisional area after consultation with and approval from the Ordnance Officer *and* G-4 of the division.

(2) By the Battalion Commander of a battalion in direct support of a corps: Companies of a battalion within the Corps and Divisional areas after approval from Ordnance Officer *and* G-4 of the Corps.

(3) By Ammunition Battalion Commanders: ASP's will be established on recommendation of the Ordnance Officer and G-4 of divisions and Corps *after* approval by Army Headquarters. When such recommendation is forwarded to the Army Ordnance Officer, it must specifically state that Corps or Division clearance has been obtained. (As desired by Corps Commander.)

(4) By Ordnance Group Commanders: Battalion and battalion headquarters *after* Army approval of recommendation of the Group Commander.

(5) By the nearest Corps and Division Commander: In case of failure of communications or in a tactical emergency.

b. All other movements will be directed by Army.

c. Reports (accompanied by overlays and giving time of opening and closing of installations) of all movements of Ordnance organizations to new locations will be forwarded immediately to the Army Ordnance Officer through Ordnance channels.

d. The closest possible contact (both as to the tactical situation and service requirements) will be maintained by the Ordnance commanders with appropriate officers of supported line organizations. Each Ordnance unit (battalion and company) will be given a special task assignment and specific instructions regarding its execution.

## SECTION II

## SUPPLY

4. **Original Stockage and Build-up.** a. Spare parts, replacement vehicles, weapons, and cleaning and preserving materials.

(1) All troops will arrive on the Continent with complete organic load of spare parts and cleaning and preserving materials.

(2) Designated Ordnance Maintenance and Depot Companies are issued additional weapons, vehicles, and spare parts to provide for battle losses and an operational reserve.

(3) Operational reserves (replacements for battle losses) and maintenance requirements for troops will be obtained by Army demand on Com. Z.

b. *Ammunition.* (1) All units will arrive on the Continent with a minimum supply of ammunition as shown in basic load charts.

(2) *Maintenance.* The estimated rate of expenditure will be available from Com. Z on demand. Estimated requirements by periods have been transmitted to Com. Z.

5. **Responsibility.** a. Unit commanders are responsible that their organizations are completely equipped with ordnance material (major items, basic load of spare parts as prescribed in pertinent T/O & E's, T/B4's, SNL's) and basic load of ammunition. After being alerted, these will be obtained as prescribed in Administrative Instructions Preliminary to Mounting.

b. *Supply Discipline.* Supply Discipline will be enforced with particular attention to the following:

(1) Stocking of excess quantities of materiel and supplies beyond estimated or anticipated current requirements.

(2) Wasteful use of expendable supplies, such as cleaning and preserving

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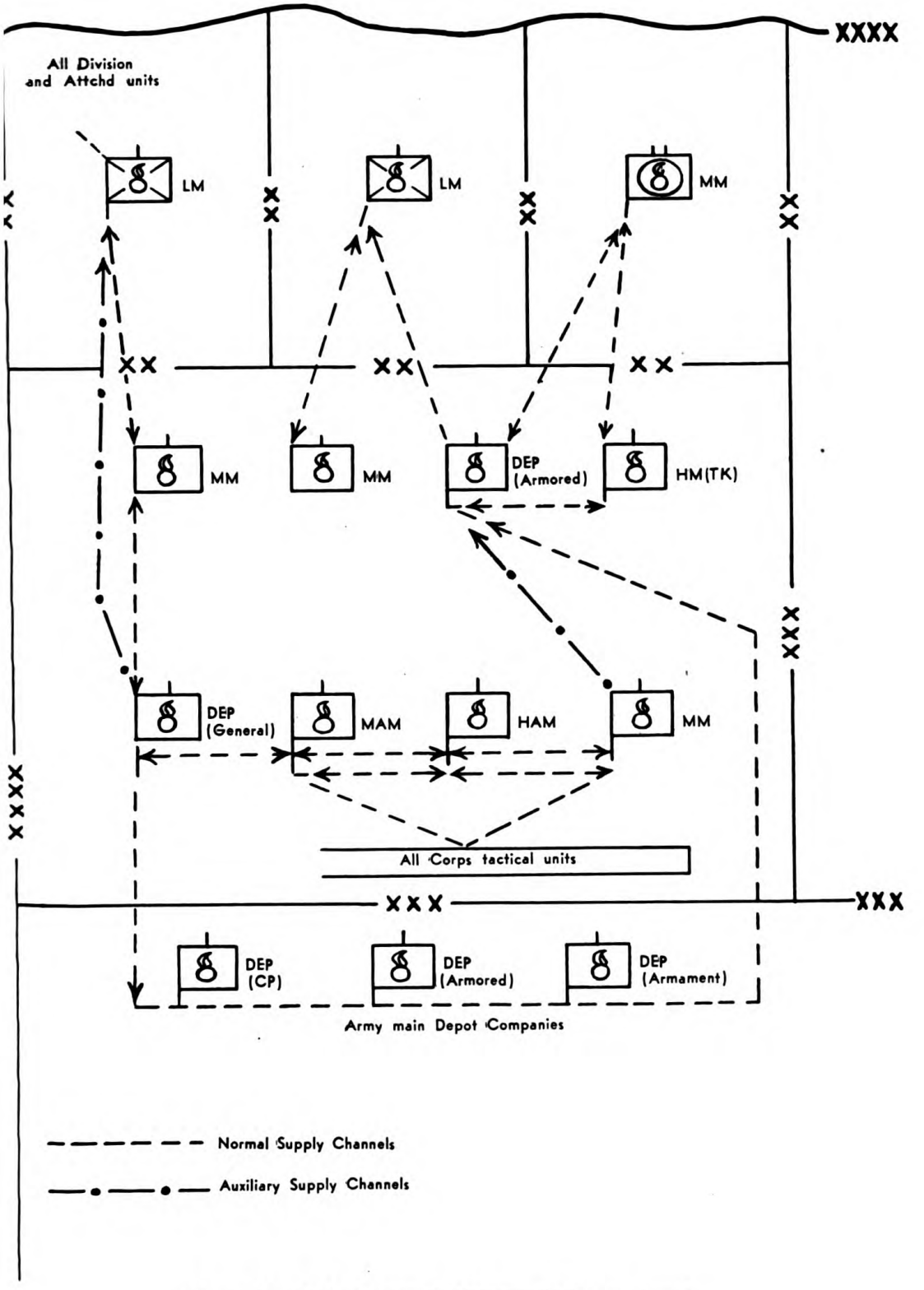



**Figure 24. Typical Layout of Army Ordnance Supply.**


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materials, metal stocks, standard hardware, parts common, and small maintenance parts.

(3) Careless handling and storage of supplies and materiel, including damaging of containers in opening and failure to close or reseal containers from which a portion of the contents has been removed.

c. *Weapons of Hospital Patients.* Weapons coming under medical control due to evacuation of patients, etc., will be turned in promptly by hospitals, and other Medical installations, to the nearest ordnance maintenance company, and a receipt obtained therefor.

6. **Method of Issue.** a. General Supplies:

(1) *Major Items:* (a) Ordnance Maintenance and Depot Companies will issue major items to using troops whom they support in exchange for:

*1.* An unserviceable major item of the same type.

*2.* A certificate, signed by an officer, that a major item of the same type has been totally destroyed due to enemy action or accident, abandoned due to enemy action, or destroyed to prevent capture by enemy.

*3.* In case a unit requires a major item which cannot be supplied from stocks on hand, the unserviceable item will be tallied in or the certificate in (b) accepted. Replacement will be procured from the depot company in the normal manner.

(b) Ordnance companies will report to the Army Ordnance Officer all major items issued troops of other nations, showing designation of organization to which issue is made.

(c) Major items excluding vehicles and towed artillery will be stocked by maintenance and depot companies as indicated in Appendix VI. Maintenance and Depot Companies will maintain a vehicle and towed artillery pool as prescribed in Appendix VII.

(2) *Spare Parts and Cleaning and Preserving Material.* (a) Basic Loads of Spare Parts.

*1. Tactical Units.* Requisitions will be submitted in triplicate on the basis shown on blank forms furnished by the Army Ordnance Officer.

*2. Divisional Ordnance Units.* Basic Loads as prescribed in SNL's will be supplied automatically by the SOS upon request submitted through the Ordnance Officer. Requisitions for supplemental items deemed necessary will be submitted through the Army Ordnance Officer in quintuplicate.

*3. Non-Divisional Ordnance Units.* Prepared blank requisition forms for the initial basic load will be furnished by the Ordnance Officer. The basic loads for Forward Depot & Maintenance companies will be a 15 day supply prepared an addenda to SNL list for the major items listed in Appendices IV and V. The basic load for the main depot companies will be a 30 day supply based on addenda on SNL list for the major items listed in Appendix V. Loads of spare parts and replacement major items carried at time of embarkation will be limited by the ability of the organization to carry same on total vehicle (T/ O & E, PHOCO and reserve) in their hands. Priority will be given to (1) Replacement weapons, (2) Binned spare parts and (3) Large or Heavy replacement units. For remainder of authorized loads, not transported by the organization to the Continent, requisitions will be prepared for submission to COMZ upon arrival at destination. Responsibility of COMZ to fill these requisitions.

*4. Tires.* Requisitions for tires for stock will be prepared by the Army Ordnance Officer and the interested Ordnance companies furnished information copies.

*5.* After arrival on the Continent, Ordnance Commanders will adjust stocks and maintain close stock control.

(b) *Basic Load of Cleaning and Preserving Material.*

*1.* Tactical units will maintain a fifteen (15) day stock of cleaning and preserving material. See Appendix No. X.

*2.* Ordnance units, in addition to their own requirements will stock a ten (10) day supply for the units they support and for the major items in Appendices VI, VII, VIII and IX for their units.

(c) *Spare Parts and Cleaning and Preserving Material Other Than Basic Loads.* Normally, except for bulk requisition spare parts and C. P., material will be issued by Ordnance maintenance companies to the troops whom they support.

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Bulk requisitions will be filled by depot companies. See Appendix X—cleaning and preserving materials.

(3) *Tools.* Appendix XI indicates the stockage of tools for maintenance and depot companies. Requisitions will be prepared and submitted by the Army Ordnance Officer. Depot and maintenance companies will be furnished an information copy at the time the requisition is submitted.

(4) *Combat Loading.* (a) All vehicles delivered to units will be "combat loaded" and made complete with all accessories as listed in appropriate SNL's and Technical Manuals, by the ordnance unit making the delivery. "Combat Loading" requires that the vehicle or weapon be complete and ready for combat.

*1.* All "must items," basic ammunition load, mines, CWS supplies decontaminating apparatus, firecontrol equipment, radio, medical supplies, and QM items including rations will be drawn and properly stowed in the vehicles.

*2.* All vehicles will be fully serviced with gasoline, oil and water, ready for operation. Standard U. S. (or French, if applicable) ground force identification marking will be accomplished before making delivery.

(b) All weapons delivered to units in combat must be complete with all accessories. Special attention will be given to artillery pieces to insure all "must items" and fire control equipment are present.

(c) Prior to issue, each weapon or vehicle will be inspected the issuing company which will prepare "emergency" requisitions for direct delivery to the unit receiving the material covering the items that are short at time of delivery. A copy of requisitions which shows action taken and shortage will accompany vehicle or weapon. Copies will also be sent to the supporting ordnance organization.

(5) *Commercial Gases and Helium.* The Corps of Engineers is responsible for supplying cylinders of commercial gases (oxygen, acetylene, nitrogen, and carbon dioxide) and helium in exchange for empty cylinders. Ordnance depot companies will stock an adequate quantity of the above items for supplying the needs of ordnance units who will normally turn in empties to ordnance depots and draw full cylinders. In emergencies, ordnance maintenance companies may draw direct from engineer depots.

(6) *Back Orders.* Ordnance maintenance and depot companies will establish "back order systems" to insure that all requirements of the using troops for ordnance materiel are filled.

(7) *Special Equipment for Ordnance Units.* Appendix VIII lists equipment which has been requested as an increase in T/E for Ordnance units. It will be supplied automatically when the unit is alerted.

(8) *Special Equipment for Other Than Ordnance Units.* Special equipment for other than Ordnance units will be as listed in Appendix IX. This equipment will be issued automatically when the unit is alerted. In most instances tactical units will be equipped under their present T/O and T/E or T/BA.

(9) *Reports.* "Materiel in Hands of Troops" and "Combat Loss" reports will be submitted by all combat and service units on the form shown in Appendix I, Form 1. Reports will be submitted as of 1200 hours on the 20th day of each month covering the period since last report and will arrive at this headquarters not later than 1200 hours on the 23rd day of each month. (See G-4 Annex on "Reports"). In case of excess over T/O & E, authorization will be given. Other reports will be as indicated in Appendix I.

b. *Ammunition.* (1) All units in the Army will secure replacement of expended base load Class V ammunition on presentation of a request or transportation order to the nearest ASP or Army Depot. This request will contain a certificate to the effect that the ammunition required is to replace expenditures from basic load No ammunition in excess of basic load will be issued except on specific authority of the Army.

(2) Unit of fire will be that prescribed by Hq. ETOUSA Ltr., dated 10 December 1943, AG 471 NGG.

(3) Unserviceable ammunition with its location clearly defined will be reported to the nearest Ordnance Officer for disposition. U. S. Artillery ammunition unserviceable only by reason of dented cartridge cases will be evacuated to the nearest Class V Supply Point. Malfunctions of ammunitions will be reported im-

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mediately to the Army Ordnance Officer through channels. Reports will include all available details.

(4) A daily status of stocks report of all Class V supplies will be submitted by each ASP and Army Depot as of 1800 hours, two copies from each service, to reach Army Headquarters not later than 0800 hours the following day, one copy to battalion headquarters. Status of stocks report will be submitted on Form 2, App. 1. The following information is required in rounds on above reports:

Column 4—Balance on hand last report.
Column 5—Transferred to ASP #———.
Column 6—Issued.
Column 7—Received.
Column 8—Balance on hand.
Column 9—Target level.

(5) A monthly ammunition supply report will be submitted by all combat and service units, as of 1600 the 20th day, to reach Army Headquarters not later than 1800 of the 23rd day. Army units will submit reports direct to Army Headquarters, reports from units assigned or attached to Corps will be consolidated by Corps before forwarding to Army. This report will include for each item (a) Balance on Hand, (b) Expended in Combat, (c) Expended for training, (d) Loss due to enemy action.

7. **Supply for Com Z.** a. When Corps are operating separately, to be made in accordance with instructions issued by Ordnance Officer on staff of senior ground commander.

b. When Corps are operating under Army control, to be made available or demand of Army Ordnance Officer or Commanding Officers of Army supply or rear maintenance battalions. Delivery to be made as indicated on the supply request.

## SECTION III

## MAINTENANCE

8. **Responsibility.** a. Responsibility for maintenance of motor vehicles is clearly defined in AR 850-15. Maintenance of equipment in the hands of using troops is a direct responsibility of the commanding officers concerned.

b. Particular attention will be devoted to preventive maintenance. Commanding Officers will make frequent checks to assure that all operations classified under his heading are performed regularly.

c. Ordnance maintenance commanders (Group, Battalion, and Company) will aggressively push maintenance and Ordnance Service forward to the troops supported.

9. **Exchange.** Vehicles and weapon replacement or exchange, together with prompt evacuation, will be as dictated by the tactical situation.

10. **Files.** Ordnance maintenance companies will at all times maintain files of pertinent data for each of the organizations they support, showing types of major items with which the organization is equipped, existing shortages, status of action being taken to fill shortages, condition of materiel, and other important information. When the organization moves, this file will be forwarded through Ordnance channels to the maintenance company designated to support the organization in its new location.

11. **Records.**

a. The following records will be kept.

(1) Duty Roster—WD, AGO Form Number 6.

(2) Preventive Maintenance Service and Technical Inspection Work Sheet No. 1—WD, AGO Form Number 461.

(3) Preventive Maintenance Service and Technical Inspection Work Sheet No. 1—WD, AGO Form Number 462.

(4) Preventive Maintenance Service and Technical Inspection Work Sheet No. 1—WD, AGO Form Number 463.

b. All vehicles will be properly dispatched and records maintained on daily dispatching Record of Motor Vehicles, WD, AG Form 7361 (old WD, QMC Form Number 765).

c. Drivers of motor vehicles will have the following in their possession:

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(1) Drivers Trip Ticket and Preventive Maintenance Service Record, WD, AGO Form Number 48 (old WD, QMC Form Number 237).

(2) Army Motor Vehicle Operator's Permit, WD, 66 Form Number 7360 (old WD, QMC Form Number 228).

(3) Drivers' Accident Report, Standard Form Number 26.

12. **Artillery Tubes.** Ordnance units supporting artillery will report when 75% of the life of a tube has been shot away, Appendix XII will be referred to for the expected life of a tube. The report will be forwarded to the Army Ordnance Officer for action.

13. **Signal Repair Teams.** Signal repair teams will be attached to designated Ordnance companies for the purpose of repair and salvage of radio sets.

## SECTION IV

## EVACUATION AND SALVAGE

14. **Evacuation.** a. The purpose of evacuation is to conserve critical equipment by recovering unserviceable Ordnance materiel for repair or salvage purposes in the shortest possible time. Evacuation is the responsibility of all commanders.

b. Tactical units are responsible for evacuation to designated collecting points, generally in the vicinity of an Ordnance maintenance or supply organization. Collecting axis may be designated if the situation warrants, and will coincide with the maintenance axis. The evacuation service of tactical units will be augmented by organic Ordnance units.

c. Evacuation from tactical unit collecting points to Army collecting points will be accomplished by Army Ordnance units. Army collecting points normally will be located near depot companies.

d. *General Policy for Ordnance Units.* Prompt evacuation of repairable equipment which is beyond the repair facilities, available spare parts, and available time of the organization, will be to the next rear maintenance unit. (This will include tires, tubes, engines, transmissions, axles, generators, starters, carbureters, fuel pumps, and similar items.) Materiel being evacuated will have attached a tag showing nature of repairs required, unit initiating the evacuation, and the signature of an Ordnance Officer.

e. Army Ordnance will promptly evacuate to the Base, equipment beyond repair within the policy annunciated in sub-paragraph *a*.

f. Cannabilization will be held to the absolute minimum dictated by military necessity.

15. **Salvage.** Ordnance salvage materiel will be evacuated through Ordnance channels to the rear battalions.

a. The rear maintenance battalions will, as far as possible, repair and replace in stock repairable sub-assemblies and other usable parts. If beyond their capacity, materiel will be evacuated to the Base Ordnance Shops if repairable and if not repairable, to the Base Quartermaster Salvage Yards.

b. Competent personnel from the Rear Maintenance battalions will make daily visits to Quartermaster Salvage Yards within the Army area to recover usable or recoverable Ordnance materiel which have been delivered direct to the salvage yards.

## SECTION V

## BOMB DISPOSAL

16. **Location.** It is the responsibility of unit commanders to make reconnaissance, mark the location, establish safety precautions and report all unexploded bombs and "duds" wherever found to the Corps or Army Ordnance Officer by the fastest means available. Reports will specify exact location of the bomb "dud" in terms of six (6) number coordinates of an easily recognized terrain feature. The location of the bomb or "dud" will be given as a definite distance on a given azimuth from the terrain feature given as a reference. The report will state whether or not the unexploded bomb or "dud" is hampering operations or endangering important facilities and give name of officer and organization originating the report.

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17. **Disposal.** Disposal of unexploded bombs and "duds" (except land and AP mines) is an Ordnance responsibility. Bomb Disposal units (Ordnance) will be employed for this purpose. When necessary, the appropriate Ordnance Officer will request the cooperation and assistance of Engineers. Bomb Disposal units will be attached to Corps until the disposal problem indicates other attachments are desirable.

18. **Bomb Cemeteries.** All disposal will be carried out in place, except where personnel or property, that it is desirable to preserve, will be endangered. Bombs and other unexploded missiles that cannot be disposed of in place will be taken to bomb cemeteries for disposal. Bomb cemeteries will be located in cooperation with G-4. Cemeteries will be located a minimum of 400 yards from main highways, railroads, habitable areas, and important installations.

19. **Souvenirs.** The inerting of anything of an explosive nature for souvenirs is strictly forbidden.

20. **Priorities.** Priorities for handling unexploded bombs will be established by the Army Bomb Disposal Officer.

## SECTION VI

## WATERPROOFING AND DE-WATERPROOFING

21. **Waterproofing.** Unit commanders are responsible for waterproofing of their equipment. Inspection will be accomplished by Army personnel in the marshalling area.

22. **De-Waterproofing.** Unit commanders are responsible for de-waterproofing. De-Waterproofing of "must" items will be accomplished as soon as the vehicle is landed over the beach.

a. "Must Items—De Waterproofing".

(1) Completely unseal booster cylinder intake, or compressor (Air Brakes) air intake.

(2) Replace air cleaner unit if removed and refill with proper oil.

(3) Unseal distributor.

(4) Unseal battery vents.

(5) Unseal crankcase filler tube cap breather.

(6) Unseal crankcase ventilator outlet pipe.

(7) Unseal oil measuring well and insert oil measuring stick.

(8) Unseal vents on differentials, transfer, and transmission cases.

(9) Crankcase and all housings should be checked for water, if water is found, change lubricant immediately.

b. All waterproofing material such as asbestos grease, flexible tubing, soft steel tubing, etc., will be saved and turned in to the nearest Ordnance company. Ordnance companies will immediately turn in all waterproofing materials to the nearest SOS agency. This material is critical. Ordnance companies will aid in de-waterproofing by furnishing contact parties who will collect the waterproofing material. Every effort must be made to keep waterproofing material clean as dirt seriously reduces its effectiveness for re-use.

## SECTION VII

## INSPECTION

23. **General.** Inspection of Ordnance equipment is a continuous responsibility of all commanders. Equipment determined unserviceable as a result of inspection will be turned in for replacement. Upon request, Ordnance battalion commanders will furnish inspection teams to determine the serviceability of questionable equipment only. If a unit is ordered to be refitted by the Commanding General, the Army Ordnance Officer will furnish technical inspection and repair teams. Ordnance battalion commanders will be furnished sample inspection forms for all types of equipment. These will be reproduced locally.

24. **Command Inspections.** a. The Army Ordnance Inspection Service will make command inspections of Ordnance materiel in hands of using arms and services of all components of the Army.

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b. Periodic inspections of units will be made to determine the following:

(1) *Operation.* (a) Use of equipment as intended.

(b) Equipment properly designed for the use intended.

(c) Proper training of personnel in use of equipment.

(2) *Maintenance.* (a) Performance of adequate and correct first and second echelon maintenance by using personnel.

(b) Availability and proper utilization of third echelon divisional and Army Ordnance maintenance.

(c) Availability and proper utilization of fourth echelon Ordnance maintenance.

(d) Execution of authorized modifications in accordance with current Field Service Modification Work Orders.

(e) Determination of any unauthorized modification.

(3) *Supply.* (a) Unit replacement and direct exchange principle functioning to the maximum degree (i.e., using troops obtaining serviceable equipment by direct exchange for like unserviceable equipment.)

(b) Availability of spare parts and prompt repair of unserviceable equipment.

(c) Critical shortages of Class II and IV Supplies in forward ordnance maintenance echelons will be reported to Army Ordnance Officer.

(d) Responsibility for receipt of New Ordnance equipment in unserviceable condition as a result of production methods, faulty inspections, improper crating, rough handling, etc.

(e) Utilization by troops of normal Ordnance channels of supply.

(f) Proper functioning of depot supply installations.

(4) *Special Inspection.* (a) Make such special inspections as may be directed by the Commanding General or the Ordnance Officer.

c. To implement this service, the inspector will:

(1) Utilize personnel of the Army maintenance units as inspectors.

(2) Maintain records of inspections and a schedule of proposed inspection.

(3) Prepare necessary command letters directing inspections.

d. All reports of inspections will be made in duplicate to the Commanding General through the Army Ordnance Officer, a copy being furnished by the Inspector direct to the Commanding Office of the unit inspected.

## SECTION VIII

## CAPTURED ORDNANCE MATERIEL

25. **Captured Enemy Ordnance Materiel.** Corps and Division Commanders are responsible that all captured enemy Ordnance materiel, other than ammunition, is turned in to the nearest Ordnance maintenance or depot company which will apply temporary preservative measures and will evacuate the material through Ordnance channels to Ordnance battalion. All commanders will exercise the closest supervision to prevent collecting of souvenirs at the expense of possible future use by ourselves or our allies. Care will be taken that captured materiel is not damaged in any manner or stripped of any part or accessories, with special attention being paid to preserving complete all optical instruments, sighting and fire control equipment, etc.

26. **Location.** When captured enemy materiel cannot be moved to areas under Ordnance supervision, the Army Ordnance Officer will be notified promptly of the location by coordinates and position relative to towns, roads or other landmarks, together with a brief description of types and quantities of materiel at that point.

27. **Ammunition.** Captured enemy ammunition, except toxic chemicals, found in original containers showing no evidence of tampering, artillery projectiles, and powder, will be evacuated through ammunition companies to specified enemy ammunition dumps. All loose small arms ammunition, grenades, mines, etc., except toxic chemicals, will be destroyed in place under supervision of qualified Ordnance personnel, or Engineer personnel. Toxic chemical ammunition will not be handled by Ordnance personnel, but will be turned over to CWS. Personnel not especially trained will not move, disturb, fire, or discharge, loose and scattered enemy munitions.

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28. **Grenades.** Under no circumstances will enemy grenades *in any condition* be moved.

29. **Mines, Booby Traps, and Sabotage Kits.** Enemy mines, booby traps, and sabotage kits, whether loose or in original containers, will not be evacuated to ASP's or Depots, but will be disposed of or destroyed as directed by the appropriate engineer officer.

30. **Reports.** Designated battalions will submit weekly reports as of 1800 hours each Saturday covering the period since last report to reach the Army Ordnance Office by 1830 hours each Monday, showing information called for on Form #3, Appendix I.

31. **Technical Intelligence.** When new or unusual items of enemy ordnance materiel are captured, report will be rendered by the most expeditious means to the Army Ordnance Officer who will cause the materiel to be inspected by Ordnance Intelligence personnel.

32. **Use.** Where considered necessary by the unit commander, combat units may use any enemy materiel and ammunition. Reports will be made to the Army Ordnance Officer of all enemy materiel used by our troops for combat purposes.

## SECTION IX

## MISCELLANEOUS

33. **Destruction of Materiel.** The destruction of Ordnance equipment is a command decision. Commanders are authorized to destroy Ordnance equipment when capture is imminent. Each unit is authorized to requisition the necessary explosives and carry them on hand for this purpose. Priority will be given to the destruction of captured enemy materiel in case recapture is imminent.

34. **Standards of Serviceability.** Standards of serviceability for shipment of equipment overseas will be as prescribed in OFSB 4-17, dated 4 February 1943, and changes thereto, for combat serviceability. In addition, the following standards will apply.

a. Tires must be capable of operating the following number of miles before recapping is necessary:

Operating Tires ..... 1000 Miles.
Spare Tires ..... 500 Miles.

b. Continuous band and block type rubber tracks must not have been run more than 500 miles.

c. Steel tracks must not have been run more than 500 miles on medium tanks and 800 miles on tractor.

d. Rubber bogie wheels must present a smooth appearance without serious cuts or large pieces torn off. Bogie wheels should be examined for heat blisters or separation of rubber and steel.

35. **Preparation of Artillery and Small Arms for Salt Water Voyage.** a. Unit commanders are responsible for the proper protection against salt water and spray of all small arms and artillery under their control.

b. All parts of artillery and small arms will be coated with oil, lubricating, preservative, medium, as prescribed in the appropriate Field Manuals with the exceptions listed in paragraph c below. *Preservative will be completely removed as quickly as practicable after landing in order that excessive dirt and dust will not accumulate and result in serious damage and stoppage.*

c. The following parts of U. S. Rifle, Caliber .30 M1, will be lubricated with grease, rifle:

(1) Surface of the bolt actuating cam on the operating rod.
(2) Locking recesses in the receiver.
(3) Hammer actuating cam on the rear of the bolt.
(4) Upper and lower circular surfaces forming the receiver bridge at rear end of the bolt.

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## APPENDIX 1

# INSTRUCTIONS TO ORDNANCE UNITS

### REPORTS TO BE SUBMITTED

Form No. 1: "Materiel in Hands of Troops" and "Combat Loss." Army Ordnance Form No. 2, submitted monthly as of 1200 hours on the 20th day of each month to reach Army Headquarters not later than 1200 on the 23rd day of each month. Reference, "Instruction to Ordnance Units," paragraph 62 (9).

Army Ordnance Form #2

ORDNANCE MATERIEL IN HANDS OF TROOPS AND COMBAT LOSS REPORT

UNIT REPORTING ---------- DATE ---------- TO ----------

ORGANIZED UNDER T/O&E----------DATED----------or T/O----------DATED----------

T/BA ----------DATED----------

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| Nomenclature | Active with Troops | | | Reserve with Troops | | Losses Since Last Report |
| | Auth. by T/BA | Auth. in Excess of T/BA | Total on Hand | Service-able | Unservice-able | |
| "A" GROUP | | | | | | |
| 1. CART, hand, M2 & M2A1 | | | | | | |
| 2. CART, hand, M3 & M3A4 | | | | | | |
| 3. CART, hand, M4 & M4A1 | | | | | | |

(NOTE: This procedure is repeated for SNL Groups A, B, C, D, F, G, N, and Tool Sets.)

Form No. 2: "Status of Ammunition" Army Ordnance Form No. 1, submitted daily as of 1800, to reach Army Headquarters not later than 0800 hours the following day. Reference, "Instructions to Ordnance Units," paragraph 6b (4).

Form No. 2: "Status of Ammunition," Army Ordnance Form No. 1, submitted monthly as of 1600 the 20th day, to reach Army Ordnance Office not later than the 23rd day. Reference, "Instructions to Ordnance Units," paragraph 6b (5).

Date: ----------No. ----------

Signature: ----------

STATUS OF AMMUNITION

Period of Report

SUBJECT: ---------- From: ----------
(Hour and Date)

TO: ---------- From: ----------To: ----------

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| | | 37MM AA GUN: | | | | |
| 97 | P5EAB | HE, M54 w/SD TR. & PDF M56 ---- | | | | |
| 98 | P5EIA | APC, M59 w/TR ---------- | | | | |

NOTE: This procedure is repeated for ammunition of all calibers.

Form No. 3: "Captured Enemy Materiel Report." Army Ordnance Form No. 3, submitted weekly by designated Ordnance battalions as of 1800 hours, Saturday, to reach Army Ordnance Office not later than 1800 the following Monday. Reference, "Instructions to Ordnance Units," paragraph 30.



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Army Ord Form No. 3

CAPTURED ENEMY MATERIEL REPORT

Organization Reporting ----------

Date ----------1800

(To be submitted weekly by designated Ordnance Bns as of 1800 hours each Saturday, covering period since last report, to arrive at Army Ordnance Office not later than 0800 following Monday.)

| Appropriate Nomenclature | Quantity on hand at end of previous week | Quantity received during week | Quantity evacuated during week | Quantity issued to troops during week | Quantity remaining in stock |
|---|---|---|---|---|---|
| Items to be shown separately in same order on each report. | | | | | |

Form No. 4: "Ordnance Major Item Supply Report." Army Ordnance Form No. 4, submitted daily by all Ordnance Maintenance and Depot Companies as of 1800, to arrive at Army Ordnance Office not later than 1800 the following day.

Army Ord Form No. 4

ORDNANCE MAJOR ITEM SUPPLY REPORT

Organization Reporting ----------

Date ---------- 1800

To be submitted daily by all Ordnance Maintenance and Depot Companies as of 1800 covering the preceding 24 hours, to arrive at Army Ordnance Office by 0800 the following day.)

| Correct Nomenclature of Items | On Hand as of Last Report | Rec'd Since Last Report | Issued Since Last Report | Balance on Hand Total | Allocated but not Delivered | Unserviceable Reparable | Unserviceable not Reparable | Available for Allocation |
|---|---|---|---|---|---|---|---|---|
| Items to be shown separately listing in order of SNL's A group, B group, etc. | | | | | | | | |

Allocation numbers filled since last report ---------- Allocation numbers on hand, unfilled ----------

Form No. 5: "Ordnance Maintenance Report." Army Ordnance Form No. 5, submitted weekly by Ordnance Maintenance Companies as of 1800 Saturday, to arrive at Army Ordnance Office not later than 1800 the following day. Column 1 is self-explanatory and Sheet No. 1 of this report, vertical columns No. 2 to No. 7, inclusive, is a general report showing the maintenance status for general types of equipment. Additional sheets with vertical columns from No. 8 to number required will report on individual major items which are classed as critical by the Army Ordnance Officer. Examples in columns 8, 9, 10 are indicated. When items are reported upon they will be listed in sequence as they appear on the critical item list published by the Army Ordnance Officer. At the bottom of sheet No. 1 or on additional sheets will be shown items deadlined with the information furnished as indicated.

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Army Ord Form No. 5

ORDNANCE MAINTENANCE REPORT

No. of Sheets this Report ------- Organization Reporting ----------

Date ---------- 1800

(To be submitted weekly by Ordnance Maintenance Companies as of 1800 Saturday, to arrive at the Army Ordnance Office not later than 0800 the following Monday.)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| | Combat Vehicles | General Purpose | Artillery | Small Arms | Instrument | Misc |
| J/O Issued To Date | | | | | | |
| J/O Issued This Week | | | | | | |
| J/O Completed To Date | | | | | | |
| J/O Completed This Week | | | | | | |
| J/O Cancelled To Date | | | | | | |
| J/O Cancelled This Week | | | | | | |
| Total Jobs in Shops | | | | | | |
| Units Evac. To Date | | | | | | |
| Units Evac. This Week | | | | | | |
| Units Exchanged To Date | | | | | | |
| Units Exchanged This Week | | | | | | |
| Units Deadlined 24 hours | | | | | | |
| Units Deadlined 72 hours | | | | | | |

Units on Deadline 72 Hours or Longer

| Organization Unit belongs | J/O No. | Type of Unit | Reg. or W. No. | Date In | Cause of Deadline | Action Taken |
|---|---|---|---|---|---|---|
| | | | | | | |

**Editors Note:** Frequently the terms Job Order and Work Order have synonymous meanings in maintenance work. The new WD form (Revised Ord Form) is designated a work order in the Z1 a 'combined maintenance' form headed, Work Request and Job Order has been adopted in one service command.

**Form No. 6:** "Supply Battalion Report." Army Ordnance Form No. 6, submitted weekly by Ordnance Supply Battalions as of 1800, Saturday to arrive at the Army Ordnance Office not later than 0800 of the following Monday. Under column 1 indicated requisition number of the unit requisitioning or the Supply Battalion's requisition number on Com. Z. Under column 2 enter designation. Under column 3 enter total days requisition has been outstanding seven (7) days or over. Under column 4 enter qualities of items on hand in the supply battalion. Under column 5 list items on requisition not filled. If over five (5) items remain unfilled on any requisition, furnish copy of requisition and do *not* list items. Show on the copy of the requisition only those items unfilled. Under column 6 make any remarks as to contacts made to fill requisition or any other pertinent matter which will aid the Army Ordnance Officer in expediting fulfillment of the requisition.

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**Army Ordnance Form No. 6**

SUPPLY BATTALION REPORT

Organization or depot reporting _____

_____

Date _____ 1800 _____

(To be submitted weekly by Ordnance Supply Battalions as of 1800, Saturday, to arrive at the Army Ordnance Office not later than 0800 the following Monday.)

ARRANGE BY UNITS LISTING FIRST, REQUISITIONS PLACED BY SUPPLY BNS ON COMZ

| Req. No. | Req. outstanding 7 days or longer | Time outstanding | Quantity on hand | Items on Req. | Remarks |
|---|---|---|---|---|---|
| | UNIT | DAYS | | | |
| 1 | 2 | 3 | 4 | 5 | 6 |

Form No. 7: Army ordnance Form No. 7, will be used by all Ordnance units authorized to make allocations of equipment or ammunition.

**Army Ordnance Form No. 7**

ALLOCATIONS

No. _____

Hqs. _____(Unit Issuing) Date and Hour _____

To: _____ (Maint.) (Depot) (Am.) (Co.) (Bn.) (Gp.)

The following allocation of equipment and/or ammunition is made to _____

_____ _____ _____

2
UNIT CORPS OR ARMY

| No. Alloc. | ITEM | Total Alloc. Incl. this one | Remarks |
|---|---|---|---|
| 1 | | | |
| 3 | | | |

Priority of Delivery_____

This allocation cancels allocation Nos._____

_____

Supply Officer
TUSA

The above form will be used by all authorized Army units for making allocations of equipment and ammunition.

Form No. 8: "Special Ammunition Report." This report to be submitted by ammunition companies and battalions when the stockage of specified items becomes critical, or as called for by Army.

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ARMY ORD FORM No. 8

SPECIAL AMMUNITION REPORT

SUBJECT: Status of Essential Stocks. No.----------

TO: ---------- ---------- As of ---------- hrs ---------- 1944
time date

FROM: ---------- Signature ----------

| Line | Code | | On Hand | U/F |
|---|---|---|---|---|
| 100 | P5HBA | Cart, AP-T, M81, 40mm AA Gun | | |
| 90 | P5HCA | Cart, HE-T, (SD) Mkll w/f PDF, 40mm AA Gun | | |
| 253 | | Shell, HE, M71, unfused, 90mm AA Gun | | |
| 101 | P5SBA | Shell, HE, M71, w/TMF M43, 90mm AA Gun | | |
| 103 | P5SCA | Shot, AP, M77, w/Tr., 90mm AA Gun | | |

NOTE: All ammunition materiel designated ESSENTIAL by the AOO will be included on this form.

Form No. 9: "Reconnaissance Report." Submitted by units making reconnaissance of areas for prospective future ASP's, or Depots. Reports to be forwarded to Army Ordnance Officer by Ammunition Companies, Depot Companies and by other Ordnance companies when required.

RECONNAISSANCE REPORT

ARMY ORD. FORM No. 9

RECONNAISSANCE STARTED FROM ---------- AT ----------
(time and date)

AND COMPLETED AT ---------- AT ----------
(time and date)

| MAP COORDINATES |
|---|
| |
| |
| |

| MILEAGE CHART |
|---|
| |
| |
| |

FINDINGS

1. Overlay to accompany this report will be made on current operational map. This overlay will indicate road conditions between rear area and site, and between site and fighting troops.
2. Tonnage capacity under unfavorable conditions: ----------
3. Drainage: ----------
4. Cover: ----------
5. Concealment: ----------
6. Recommended immediate road improvements to be made by engineers: ----------
7. Desired road improvements to be made by engineers: ----------
8. Layout plan:
   a. Roadside: ----------
   b. Area: ----------
9. Recommendations:

Submitted as of ----------
(time and date)

To: ----------

By: ----------

Form No. 10: "Report of Operations." Submitted by Ammunition Battalion Headquarters to summarize daily activities as indicated on form.

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ARMY ORD. FORM No. 10

AMMUNITION

Period ---------- to 1800 ----------

Status of Major Transfers as of 1800 ----------

| Trans. Order No. | From ASP or Depot | To ASP | Date | Time | Vehicles in convoy | Loading time | Unloading time | Actual Tonnage shipped | Actual Tonnage received | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| | | | | | | | | | | |

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## APPENDIX IV

### BASIC LOAD BASIS NON-DIVISIONAL MAINTENANCE COMPANIES

Each type Ordnance Maintenance Company will stock spare parts and cleaning and preserving Material for the number of Major Items indicated in the appropriate column. Maintenance Companies will also stock a minimum of fifteen (15) days supply of parts common (tires, tire patches, valve caps, windshield wiper blades, lamp bulbs, etc.), standard hardware nuts, bolts, screws, metal stock, etc., Group K-2 material, and any other items which experience has shown to be necessary, and for which transportation is available.

| MAJOR ITEM | Medium Maintenance Company | Medium Automotive Maintenance Company | Maintenance Company (AA) | Heavy Automotive Maintenance Company | Heavy Maintenance Company (FA) | Heavy Maintenance Company (Tk) |
|---|---|---|---|---|---|---|
| Carr. gun, 40mm (AA) (all models) | 10 | | 80 | | | |
| Cart. hand, M3A4 | 25 | | | 25 | | |
| Gun, 40mm, auto, M1 (AA) | 10 | | 80 | | | |
| Gun, mach., cal. .30, M1917A1 | 50 | 50 | 15 | 25 | 50 | 25 |
| Gun, mach., cal. .30, M1919A4 (Flex) | 100 | 50 | 50 | 50 | 50 | 50 |
| Gun, mach., cal. .30, M1919A6 | 50 | 50 | | 20 | 20 | |
| Gun, mach., cal. .50, Brg. M2, HB, (Flex) | 150 | 150 | 150 | 150 | 150 | |
| Gun, mach., cal. .50, W/C, (Flex) M2 | 10 | | 50 | | 50 | |
| Gun, submach., cal. .45, M3 | 400 | 400 | 200 | 400 | 400 | 400 |
| Mortar, 60mm, M2, w/mount, M2, M1 | 100 | | | | 50 | 40 |
| Mortar, 81mm, M1, w/mount, M1 | 100 | | | | 50 | 20 |

NOTE: This procedure is repeated for SNL Groups A, B, C, D, F and G Groups. A complete standard list is thereby furnished all units.

NOTE: In all cases where major items are listed as, for example: Carriage, Motor, 3" gun, M10, w/arm; Spare parts will be requisitioned for all items relative to this major item such as, armament, fire control instrument, etc. In the case of tanks listed, parts must be requisitioned for everything relative to the tanks, such as, armament, fire control, gyrostabilizers, etc. Any major items listed as w/armament, requisitions will be placed for spare parts for the armament normally considered as part of the major items.

## APPENDIX NO. V

### BASIC LOAD BASIS DEPOT COMPANIES

Depot Companies will stock spare parts, accessories and C & P for the number of major items indicated in the appropriate column. Forward depots will stock 15 days supply; Main depots will stock 30 days supply. Depot Companies will carry also a minimum of 15 days supply of parts common, Group H Material, Group K-2 material and any other items considered necessary and for which transportation is available.

| MAJOR ITEM | Depot Co. Fwd Genl. | Depot Co. Fwd Armd. | Depot Co. Main Arm. | Depot Co. Main G. P. V. | Depot Co. Main C. V. |
|---|---|---|---|---|---|
| Carriage, Gun, 40mm AA, M2 | 50 | 50 | 420 | | |
| Cart, hand, M3A4 | 200 | | 720 | | |
| Gun, 40mm Automatic, M1, AA | | | 420 | | |
| Gun, machine, cal. .30, M1917A1 | 500 | 100 | 1,750 | | |
| Gun, machine, cal. .30, M1919A4, flex. | 500 | 600 | 4,400 | | |
| Gun, machine, cal. .30, M1919A6 | 100 | 50 | 450 | | |
| Gun, machine, cal. .50, M2 HB, flex. | 1,300 | 1,300 | 10,000 | | |
| Gun, machine, cal. .50 W/C, flex. M2 | 100 | | 100 | | |
| Gun, submachine, cal. .45, M1, M1A1 | 600 | 600 | 1,000 | | |
| Gun, submachine, cal. .45, M3 | 4,000 | 4,000 | 34,000 | | |
| Mortar, 60mm M2 , w/mount M2, M1 | 300 | 100 | 1,300 | | |
| Mortar, 81mm, M1, w/mount M1 | 150 | 100 | 700 | | |

NOTE: This procedure is repeated for SNL Groups A, B, C, D, F and G groups. A complete standard list is thereby furnished all units.

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## APPENDIX VI

### MAJOR ITEM REPLACEMENTS TO ACCOMPANY ORDNANCE UNITS

| MAJOR ITEM | Medium Maintenance Co. (17) | Medium Automotive Maintenance Company (17) | Maintenance Company (AA) (5) | Depot Company (fwd. Gen.) (3) | Depot Company (Fwd Armd) (5) | Depot Company (Main arm) (1) | Depot Company (Main O.V.) (1) | Depot Company (Main G.P.V.) (1) |
|---|---|---|---|---|---|---|---|---|
| Cart, hand, M3A4 | | | | 1 | | 5 | | |
| Gun, mach., cal. .30, M1917A1 | 3 | 1 | 2 | 4 | | 10 | | |
| Gun, mach., cal. .30, M1919A4 (Flex.) | 2 | 2 | 1 | 6 | 6 | 20 | | |
| Gun, mach., cal. .30, M1919A6 | 1 | 1 | | 2 | | 5 | | |
| Gun, mach., cal. .50, Brg. M2, HB, (Flex.) | 4 | 2 | 2 | 20 | 20 | 40 | | |
| Gun, mach., cal. .50, W/C (Flex.) M2 | | | 1 | 1 | 1 | 4 | | |
| Gun, Sub-mach., cal. .45, M3 | 10 | 5 | 5 | 50 | 50 | 500 | | |
| Mortar, 60mm, M2, w/mount, M2, M1 | 2 | | | 4 | 4 | 10 | | |
| Mortar, 81mm, M1, w/mount, M1 | 1 | | | 2 | 2 | 4 | | |

NOTE: Repeat procedure listing all items desired to accompany ordnance units.

## APPENDIX VII

### VEHICLE AND TOWED ARTILLERY POOLS—ORDNANCE COMPANIES

Pool levels to be maintained
By type companies indicated.

| Vehicle and Towed Artillery Pools—Ordnance Companies | Forward Dep Co (Gen) | Forward Dep Co (Arm'd) | Main Depot Co (G. P.) | Main Dep Co (Combat) | MM Co | Main Dep Co (Armament) | MM (AA) Co | MAM Co | HM (Tk) Co |
|---|---|---|---|---|---|---|---|---|---|
| Gun, Auto, 40mm M1 (AA) & Carr, M2 | 1 | | | | 1 | | | | |
| Gun, 57mm M1 (AT) & Carr, all models | 3 | | | | 3 | | | | |
| Gun, 90mm M1 & Mount M1 & M1A1 | | | | | 1 | | | | |
| Gun, 3" Towed M5 and Carr, M1 & M6 | 1 | | | | 3 | | | | |
| How, 105mm M2A1 & Carr, M1A1, M2, M2A1, M2A2 | 1 | | | | 2 | | | | |
| How, 105mm M3 & Carr, M3 & M3A1 | 1 | | | | 2 | | | | |
| How, 155mm M1 & Carr, M1 & M1A1 | | | | | 3 | | | | |
| How, 8" M1 & Carr, M1 | | | | | 2 | | | | |
| How, 240mm M1 & Carr M1 & M2 | | | | | 1 | | | | |

NOTE: Report procedure listing all vehicles and towed artillery desired to be held in post ordnance companies.

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## APPENDIX VIII

### INCREASE IN T/O—ORDNANCE UNITS

| | MM Co 9-7 | MAM Co 9-127 | MM (AA) Co 9-217 | HAM Co 9-197 | HM (Tk) Co 9-37 | HM (FA) Co 9-9 | Am Co T/BA 9 | Depot Co 9-57 | Evac Co 9-187 | Bn Hq 9-76 | Am Bn Hq 9-15 | B D Squad 9-179 | MAM Co w/Engr Sp Brig | Lt Maint Co 9-8 | Maint Bn A D 9-66 & 9-67 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Truck, ¼-Ton, 4x4 | | 4 | 2 | 1 | 3 | 2 | | 1 | 1 | 3 | 3 | 1 | | | |
| Truck, ¾-Ton, W/C | | | | | | | | | 1 | 1 | 1 | | | | |
| Truck, 1½-Ton, 6x6 | | | | | 2 | 1 | | 2 | | 3 | 3 | | | | |
| Truck, 2½-Ton, 6x6 | | | | | 2 | 2 | 10 | 2 | 3 | | | | | | 4 |
| Truck, 2½-Ton, 750-Gal. Gas | | | | | 1 | | | | | | | | | | 4 |
| Wrecker, 4-Ton | 1 | 2 | | 1 | | | | 1 | | | | | | | |
| Wrecker, 10-Ton | 1 | 1 | | 1 | 2 | 2 | | | 3 | | | | | | |
| Trailer, 250-Gal. Water | 1 | 1 | 1 | 1 | 1 | 1 | | 1 | 1 | | | | | | |

NOTES: 1. Repeat procedures listing all items carried in excess as special authorization. 2. Herein will also be shown increases over T/O and T/E authorized other units which would be designated Appendix IX.

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## APPENDIX X

## ARTILLERY C & P

## ESTIMATED QUANTITIES FOR 30 DAYS

| | Supplies | Note Symbol | Unit of measure | Mortar, 60mm | Mortar, 81mm | Gun, Auto, 20mm, AN-M2 (Aircraft) | Gun, 37mm, M6, Mount, 21(Tank) | Gun, 37mm, M3A1; Carriage, (M4A1 (AT) | Gun, 37mm, M3A1; Mount, M23, M23 (AT) |
|---|---|---|---|---|---|---|---|---|---|
| | BASIS—NUMBER OF WEAPONS | | | 10 | 10 | 10 | 10 | 10 | 10 |
| 1 | BRUSH, paint, metal-bound, flat (med. gr.) No. 1, 3 in. | 1 | EA | 5 | 5 | 5 | 5 | 5 | 5 |
| 2 | BURLAP, jute, 8 oz. 40 in. wide | 2 | yd | 60 | 70 | ------ | 60 | 60 | 50 |
| 3 | CHALK, blue/white railroad 1" x 4" | ------ | Gr | 2.5 | 2.5 | ------ | 0.5 | 0.5 | 0.5 |
| 4 | CLEANER, Rifle bore | 3 | Qt | ------ | ------ | 20 | ------ | ------ | ------ |
| 5 | CLOTH, abrasive, aluminum-oxide, 5/0180 (Fine) | ------ | Qr | 0.8 | 0.8 | 2.5 | 1.5 | 1.5 | 1.5 |
| 6 | CLOTH, abrasive, aluminum-oxide, 3/0120 (med) | ------ | Qr | 0.8 | 0.8 | 2.5 | 1.5 | 1.5 | 1.5 |
| 7 | CLOTH, crocus | ------ | Sht | 60 | 80 | 40 | 60 | 60 | 60 |
| 8 | CLOTH, wiping, cotton, mixed | 4 | Lb | 150 | 150 | 100 | 100 | 100 | 100 |
| 9 | COMPOUND, Anti-freeze | 5 | Gal | ------ | ------ | ------ | ------ | ------ | ------ |
| 10 | COMPOUND, rust preventive light | ------ | Lb | 5 | 5 | 5 | 5 | 5 | 5 |
| 11 | ENAMEL, synthic, olive-drab | 6 | Gal | 0.5 | 0.5 | 0.5 | 0.5 | 2 | 0.5 |
| 12 | GLYCERINE, Grade A, U.S.P. | 7 | Gal | ------ | ------ | ------ | ------ | ------ | ------ |
| 13 | GREASE, general purpose, No. 0/1 | 8 | Lb | ------ | ------ | ------ | ------ | ------ | ------ |
| 14 | GREASE, general purpose, No. 2 | 9 | Lb | ------ | ------ | ------ | ------ | 7 | ------ |
| 15 | GREASE, O.D., No. 0/00 | 10 | Lb | ------ | ------ | ------ | 10 | 20 | 15 |
| 16 | GREASE, water-pump | ------ | Lb | ------ | ------ | ------ | ------ | ------ | ------ |
| 17 | LEAD, white, basic-carbonate | 11 | Lb | As required | | | | | |
| 18 | LUBRICANT, gear, universal, SAE 80/90 | 12 | Lb | ------ | ------ | ------ | ------ | ------ | ------ |
| 19 | NEEDLES, sacking, steel, 4½" | ------ | Ea | ------ | 20 | 20 | ------ | 20 | 20 |
| 20 | OIL, castor, technical, grade | 13 | Pt | ------ | ------ | ------ | ------ | ------ | ------ |
| 21 | OIL, engine, SAE 10/30 | 14 | Qt | ------ | ------ | ------ | 30 | 30 | 30 |
| 22 | OIL, hydraulic | 15 | Gal | ------ | ------ | ------ | ------ | ------ | ------ |
| 23 | OIL, lubricating, for aircraft instruments | 16 | Qt | 1 | 1 | ------ | 2 | 2 | 2 |
| 24 | OIL, lubricating, preservative, light | 17 | Qt | 50 | 60 | ------ | ------ | ------ | ------ |

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## APPENDIX X

| Gun, 37mm, Auto, M1A2; Carriage, M3A1 (AA) | Gun, 37mm, Auto, M1A2; Mount, Comb, M42 (AA) | Gun, Auto, 37mm, M4 (Aircraft) | Gun Auto, 40mm, M1; Carriage, M2 (AA) | Gun, 57mm, M1; Mount, T5 (AT) | Gun, 57mm, M1; Carriage, M1A2 (AT) | How, 75mm, M1A1; Carriage, M3A3 (Field How) | How, 75mm, M1A1; Carriage, M1 (Pack How) | How, 76mm, M1A1; Carriage, Motor, M3 | Gun, 75mm, M1897A4; Carriage, M2A3 | Gun, 75mm, M1897A4; Mount, M3, M5 | Gun 75mm, M3; All Mounts (Tank) | Gun, 75mm, M4, Mount, Airplane, M6 | Gun, 3", M5; Carriage, M1 | Gun, 3" M7; Mount, M5 | Gun, 3", M3, Mount, M1A1, M1A2, M2A1, M2A2 (Mobile) (AA) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| 10 | 5 | 5 | 10 | 10 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 7 | 5 | 10 |
| 80 | 80 | 60 | 80 | 80 | 70 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 0.5 | 0.5 | ------- | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | ------- | 0.5 | 0.5 | 0.5 |
| ------ | ------- | ------- | ------- | ------- | ------- | ------- | ------- | ------ | ------- | ------- | ------- | ------- | ------- | ------- | ------- |
| 2.5 | 2.5 | 1.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| 2.5 | 2.5 | 1.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| 100 | 60 | 60 | 100 | 80 | 80 | 80 | 80 | 90 | 80 | 90 | 90 | 90 | 90 | 90 | 120 |
| 125 | 100 | 100 | 125 | 100 | 100 | 90 | 90 | 100 | 90 | 100 | 100 | 100 | 125 | 100 | 150 |
| 2.5 | ------- | ------- | 2.5 | ------- | ------- | ------- | ------- | ------ | ------- | ------- | ------- | ------- | ------- | ------- | 2.5 |
| 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 7 | 7 | 10 |
| 2 | 0.5 | 1 | 2 | 1 | 2 | 2 | 2 | 1 | 2 | 1 | 1 | 1 | 1.5 | 1 | 2 |
| ------ | ------- | ------- | ------- | ------- | ------- | ------- | ------- | ------ | ------- | ------- | ------- | ------- | ------- | ------- | ------- |
| ------ | ------- | ------- | ------- | ------- | ------- | ------- | ------- | ------ | ------- | ------- | ------- | ------- | ------- | ------- | ------- |
| 10 | ------- | ------- | 10 | ------- | 7 | 10 | 5 | ------ | 10 | ------- | ------- | ------- | 10 | ------- | 15 |
| 60 | 10 | 10 | 60 | 20 | 25 | 30 | 30 | 30 | 30 | 20 | 20 | 20 | 40 | 20 | 80 |
| 0.3 | ------- | ------- | 0.3 | ------- | ------- | ------- | ------- | ------ | ------- | ------- | ------- | ------- | ------- | ------- | ------- |
| Maximum one pound per weapon per month | | | | | | | | | | | | | | | |
| ------ | ------- | ------- | ------- | ------- | ------- | ------- | ------- | ------ | ------- | ------- | ------- | ------- | ------- | ------- | ------- |
| 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| ------ | ------- | ------- | ------- | ------- | ------- | ------- | ------- | ------ | ------- | ------- | ------- | ------- | ------- | ------- | ------- |
| 75 | 30 | ------- | 75 | 30 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | ------- | 50 | 40 | 10 |
| 12 | ------- | ------- | 12 | ------- | ------- | ------- | ------- | ------ | ------- | 10 | 10 | ------- | ------- | 10 | 10 |
| 2 | 2 | ------- | 5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | ------- | 2.5 | 2.5 | 5 |
| ------ | ------- | ------- | ------- | ------- | ------- | ------- | ------- | ------ | ------- | ------- | ------- | ------- | ------- | ------- | ------- |

NOTE: Continue procedure shown listing prescribed quantities of Artillery C&P for the various major items in this category.

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## FOOT NOTES ON ARTILLERY

For latest instructions on cleaning and preserving materials, see proper Technical Manuals (TM) and W.D. Lubrication Guide (Check chart) for specific weapons.

Ordnance personnel: Check latest OFSB 6-series for latest instructions pertaining to specific weapon. Note especially OFSB 6-3 through 6-11 for general instructions, including special lubricants for cold weather operation.

Allowances for the weapons also include necessary supplies for Fire Control instruments and Remote Control equipment, including motor generator units. Weapons mounted on self-propelled carriages have supplies for the mount, but not for the carriage. Allowances for self-propelled carriages must be figured from the table on Vehicles.

1. **BRUSH,** artist or paint—When not available, any small paint brush may be substituted.
2. **BURLAP,** jute—Acceptable substitute is Cloth, cotton, Osnaburg.
3. **CLEANER,** rifle bore—When not available, hot soapy water, (issue soap), and sal soda, or Soda, ash, Type I, may be substituted.
4. **CLOTH,** wiping—When not available, WASTE cotton, white, may be substituted.
5. **COMPOUND,** anti-freeze—For winter use in motor generator units. Quantities listed are for replacement purposes, and do not include initial mixtures.
6. **ENAMEL,** synthetic, olive-drab—For touch-up purposes. When not available any suitable and available olive-drab paint may be substituted.
7. **GLYCERINE,** grade A, U, S. P.—For use in glycerine-water recoil fluids.
8. a. **GREASE,** general purpose, No. 0—Chassis lubricant above 32° F. In emergency, GREASE, O. D. No. 00, may be substituted.

   b. **GREASE,** general purpose, No. 1—Chassis lubricant above 32° F. In emergency, GREASE, O. D. No. 0 Grease, general purpose, No. 0, or GREASE, O. D. No. 00 may be substituted.

   c. In very hot weather, GREASE, general purpose, No. 2, may be substituted.
9. **GREASE,** general purpose, No. 2—Wheel bearing grease.
10. a. **GREASE,** O. D. No. 0—Artillery lubricant above 32° F. In emergency, GREASE, general purpose, No. 1, GREASE, O. D. No. 00, or GREASE, general purpose, No. 0, may be substituted.

    b. **GREASE,** O. D., No. 00—Artillery lubricant below 32° F. In emergency, GREASE, general purpose, No. 0, may be substituted.
11. **LEAD,** white—For threaded fitting of weapons used at seacoast emplacements one pound per weapon per month is recommended.
12. a. **LUBRICANT,** gear, universal, S.A.E. 80—For use below 32° F.

    b. **LUBRICANT,** gear, universal, S.A.E. 90—For use below 32° F. In emergency, LUBRICANT, gear, universal, S.A.E. 80 may be substituted.
13. **OIL,** castor—For use with glycerine-water recoil mechanisms.
14. a. **OIL,** engine, S.A.E. 10—Artillery and generator lubricant from 32° F. to 0° F. In emergency, OIL, lubricating, preservative, light or OIL, lubricating for aircraft instruments and machine guns may be substituted, for other than engine use.

    b. For lubrication below 0° F., of artillery and all bearings, gear cases, and mechanisms, other than in engines, substitute OIL, lubricating, preservative, light. For lubrication below 0° F., of engine, dilute OIL, engine, S.A.E. 10 with 20% gasoline or SOLVENT, dry cleaning.

    c. **OIL,** engine, S.A.E. 30—Artillery and generator lubricant above 32° F. In emergency, OIL, engine, S.A.E. 10 may be substituted.

    d. Under conditions of high temperatures and humidity, such as in the tropics, or in emergency under any conditions, substitute OIL, lubricating, preservative, medium for other than engine use.

    e. For 4.7" AA gun, provide 100 gal. of OIL, engine, S.A.E. 10, and 75 gal. of OIL, engine, S.A.E. 30 at all temperatures above 0° F.
15. **OIL,** hydraulic—For remote control oil gears, turret traversing systems, stabilizer systems, and 40mm AA gun recoil fluid, above 0° F. Below 0° F, sub-stabilizer systems, and 40mm AA gun recoil fluid, above 0° F. Below 0° F, substitute OIL, recoil, special in 40mm AA gun recoil fluid. For other uses of OIL hydraulic, check latest Technical Manual (or OFSB) for approved substitution.
16. **OIL,** lubricating, for aircraft instruments and machine guns—For use on knobs, etc., of fire control instruments. In emergency, OIL, lubricating, preservative, special, OIL, engine, S.A.E. 10, or OIL, lubricating, preservative, light may be substituted.
17. **OIL,** lubricating, preservative, light—Not recommended for use where excessive rainfall, or salt spray are to be encountered. Under these conditions, substitute OIL, lubricating, preservative, medium.
18. **OIL,** lubricating, preservative, medium—Used on the outside of spare tubes for the 40mm AA gun.
19. **OIL,** lubricating, preservative, special—In emergency, OIL, lubricating, for aircraft instruments and machine guns may be substituted.
20. **OIL,** neat's-foot—For cleaning and preserving leather including holders for fire control instruments. When not available, SOAP, saddle, may be substituted in the ratio of 5 lbs. of SOAP, saddle, for 1 qt. of OIL, neat's-foot.
21. **OIL,** potentiometer—Used in M9 and M10 directors.
22. **OIL,** recoil, heavy—When authorized, will be replaced by OIL, recoil special in temperatures below 0° F.
23. **PAPER,** litmus—For use with glycerine-water recoil fluids.
24. **PRIMER,** synthetic—For touch-up purposes, for use in the protection of metallic surfaces from rust, and as a priming coat for painting. In emergency, LEAD, red, dry, and MIXTURE, liquid, for red lead paint may be substituted.
25. **SODA,** ash, type 1—For cleaning artillery tubes. In emergency, hot soapy water (issue soap), hot water, or cold water may be substituted.
26. **SODA,** caustic lye—For removing paint from metal.
27. **SODIUM HYDROXIDE**—For use in glycerine-water recoil fluids.
28. **TWINE,** jute—For use with NEEDLE, sacking, in sewing swabs.
29. **WASTE,** cotton, white—When not available, Cloth, wiping, cotton, mixed, may be substituted.

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VEHICLES C & P

ESTIMATED QUANTITIES FOR 30 DAYS

| | SUPPLIES | Note Symbol | Unit of Measure | Company or Battery | Motorcycles | Trucks Passenger Cars, 1 ton and less | Trucks 1½ to 2½ ton and Scout Cars | Trucks, 3 ton and over | Trucks Amphibian, 1-ton and less | Trucks Amphibian, 1½ ton and over | Trailers | Half Track Vehicles | FULL TRACK VEHICLES: Light | FULL TRACK VEHICLES: Medium | FULL TRACK VEHICLES: Heavy | FULL TRACK VEHICLES: Amphibian |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BASIS—NUMBER OF WEAPONS | | | | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| 1 | BRUSH, paint, metal-bound, flat, No. 1, 3 in. | 1 | Ea | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 2 | CARBON DIOXIDE ($CO_2$) | 2 | Fill | As required—Maximum—one refill per extinguisher per month | | | | | | | | | | | | |
| 3 | CLOTH, abrasive, aluminum-oxide 5/0–180 (Fine) | | Qr | 1 | | | | | | | | | | | | |
| 4 | CLOTH, wiping, cotton | 3 | Lb | | 10 | 10 | 15 | 20 | 15 | 20 | 10 | 15 | 15 | 30 | 35 | 25 |
| 5 | COMPOUND, anti-freeze | 4 | Gal | | | 3 | 4 | 5 | 4 | 5 | | 5 | 25 | 30 | 30 | 10 |
| 6 | COMPOUND, anti-seize | 5 | Lb | As required—Maximum—¼ lb per vehicle per month | | | | | | | | | | | | |
| 7 | ENAMEL, synthetic, olive-drab | 6 | Gal | | 0.5 | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 2 | 2 | 2 | 2 |
| 8 | FLUID, brake, hydraulic | | Gal | | | 1 | 1 | 1 | 1 | 1 | | 1 | | | | |
| 9 | FLUID, shock-absorber, heavy | 7 | Gal | | | | 0.5 | 1 | | | | 0.5 | | | | |
| 10 | FLUID, shock-absorber, light | 8 | Gal | | | 0.5 | 0.5 | | | 0.5 | | 0.5 | | | | |
| 11 | OIL, hydraulic | 9 | Qt | | | 1 | 1 | 1 | | 1 | | 1 | 1 | 1 | | |
| 12 | OIL, lard | 10 | Gal | As required—Maximum—1 gal. per active lather per month | | | | | | | | | | | | |
| 13 | OIL, neat's foot | 11 | Qt | 1 | | | | | | | | | | | | |
| 14 | PAPER, flint, class B, grade 2/0 | | Qr | 1 | | | | | | | | | | | | |
| 15 | PRIMER, synthetic, rust-inhibitive | 12 | Gal | | 0.5 | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 2 | 2 | 2 | 2 |
| 16 | SOLVENT, dry cleaning | | Gal | | 2 | 5 | 5 | 7 | 5 | 5 | 1 | 8 | 8 | 10 | 12 | 8 |
| 17 | SPONGE, cellulose, coarse pore, type A | | Ea | | 1 | 2 | 2 | 3 | 2 | 2 | 1 | 3 | 4 | 4 | 5 | 4 |



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## FOOT NOTES ON VEHICLES

For latest instructions on cleaning and preserving materials, see proper Technical Manuals (TM) and W.D. Lubrication Guide (check-chart) for specific vehicle. For operational requirements see FM 101-10.

Ordnance personnel: Check latest OFSB 6-series for latest instructions pertaining to specific vehicle. Note especially OFSB 6-3 through 6-11 for general instructions, including special lubricants for cold weather operation.

Allowances of supplies are those for the vehicle only, and do not include supplies for weapons mounted thereon. For the weapons, see appropriate table, e.g., Small Arms and Artillery.

1. **BRUSH,** paint—When not available, any small paint brush may be substituted.
2. **CARBON DIOXIDE,** or **LIQUID,** extinguishing, fire—Issued according to type of Fire Extinguisher. One refill per extinguisher. See TM 9-850, pars. 109-111 for refilling instructions.
3. **CLOTH,** wiping, cotton—When not available, Waste, cotton, white may be substituted.
4. **COMPOUND, anti-freeze**—For winter use with water-cooled engines. Quantities listed are for replacement purposes only, and do not include original mixtures.
5. **COMPOUND, anti-seize**—For vehicles with radial engines. ¼-lb. per vehicle per month is recommended.
6. **ENAMEL,** synthetic, olive-drab—For touch-up purposes. When not available, any suitable and available olive-drab paint may be substituted.
7. **FLUID,** shock absorber, heavy—When shown for the same group of vehicles as **FLUID,** shock absorber, light, the appropriate OFSB must be checked to see which fluid is applicable. The heavy type is for use with Houdaille and similar shock absorbers.
8. **FLUID,** shock absorber, light—For use with Delco and similar shock absorbers.
9. **OIL,** hydraulic—For turret traversing systems, stabilizer systems, and brake vacuum cylinders.
10. **OIL,** lard—One gallon per active lather (in shop truck).
11. **OIL,** neat's foot—For cleaning and preserving leather. When not available, **SOAP, saddle,** may be substituted in the ratio of 5 lbs. of SOAP, saddle, for 1 qt. of OIL, neat's foot.
12. **PRIMER,** synthetic—For touch-up purposes, or use in the protection of metallic surfaces from rust, and as a priming coat for painting. In an emergency, **LEAD,** red, dry and **MIXTURE,** liquid, for red lead paint may be substituted.

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## APPENDIX X

## SMALL ARMS C & P

## ESTIMATED QUANTITIES FOR 30 DAYS

| | SUPPLIES | Note Symbol | Unit of Measure | Company or Battery | Carbine, Cal. .30 | Rifle, Cal. .30, M1903-17 | Rifle, Cal. .30, M1 | Rifle, B.A.R., Cal. .30 | Pistol, Cal. .45 | Gun, Machine, Cal. .45 | Gun, Machine, Cal. .30, Air-Cooled | Gun, Machine, Cal. .30, Water-Cooled | Gun, Machine, Cal. .50 Heavy Barrel | Gun, Machine, Cal. .50, Water-Cooled | Launcher, Rocket, A.T., 2.36 Inch |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | BASIS—NUMBER OF WEAPONS | | | | 100 | 100 | 100 | 100 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| 1 | BRUSH, artist, bristle, flat, 3-in. | 1 | Ea. | --- | 3 | 3 | 3 | 3 | 1 | 1 | 4 | 4 | 4 | 4 | 1 |
| 2 | BRUSH, paint, metal bound, flat, No. 1, 3-in. | 1 | Ea. | --- | ---- | ---- | ---- | ---- | ---- | ---- | 2 | 2 | 2 | 2 | ---- |
| 3 | CLEANER, rifle bore | 2 | 6 oz. | --- | 100 | 100 | 100 | 100 | 10 | 10 | ---- | ---- | ---- | ---- | 10 |
| | | 2 | Qt. | --- | 10 | 10 | 10 | 10 | 1 | 1 | 4 | 4 | 4 | 4 | 1 |
| 4 | CLOTH, crocus | ---- | Sht. | --- | 10 | 10 | 10 | 10 | 1 | 1 | 4 | 4 | 4 | 4 | 1 |
| 5 | CLOTH, wiping, cotton | 3 | Lb. | --- | 40 | 50 | 50 | 50 | 3 | 4 | 25 | 25 | 25 | 25 | 50 |
| 6 | COMPOUND, antifreeze | 4 | Gal. | --- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 40 | ---- | 60 | ---- |
| 7 | ENAMEL, synthetic, olive-drab | 5 | Gal. | --- | ---- | ---- | ---- | ---- | ---- | ---- | 1 | 1 | 1 | 1 | 1 |
| 8 | GREASE, rifle | 6 | 0 | --- | ---- | ---- | 100 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| 9 | OIL, linseed, raw, type A | 7 | Gal. | --- | 0.3 | 0.3 | 0.3 | 0.3 | ---- | 0.1 | ---- | ---- | ---- | ---- | 0.1 |
| 10 | OIL, lubricating, preservative, light | 8 | 4 oz. | --- | 100 | 100 | 100 | 100 | 10 | 10 | ---- | ---- | ---- | ---- | 10 |
| | | 8 | Qt. | --- | 13 | 13 | 13 | 13 | 1 | 1.5 | 20 | 20 | 30 | 30 | 1 |
| 11 | OIL, neat's-foot | 9 | Qt. | 1 | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- |
| 12 | OIL, recoil, light | 10 | Gal. | --- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | ---- | 0.1 | ---- |
| 13 | PATCHES, cot (canton, flannel) | ---- | M | --- | 12 | 18 | 18 | 30 | 2 | 3 | 4 | 4 | 4 | 4 | ---- |
| 14 | SOLVENT, dry cleaning | ---- | Gal. | --- | 5 | 5 | 5 | 5 | 1 | 2 | 3 | 3 | 5 | 5 | 1 |

### FOOT NOTES ON SMALL ARMS

For latest instructions on cleaning and preserving materials, see proper Technical Manuals (TM) for specific weapon.

Ordnance personnel: Check OFSB 6-3 for general instructions.

1. **BRUSH**, artists and BRUSH, flowing—When not available, any small paint brush may be substituted.

2. **CLEANER**, rifle bore—6 oz. containers to be carried by all units. Quart containers to be carried in addition to the 6 oz. containers by rifle companies, and those units authorized cal. .30 and cal. .50 machine guns. In emergency, hot soapy water (issue soap), sal soda, SODA, ash, type 1, or hot water may be substituted.

3. **CLOTH**, wiping—When not available, WASTE, cotton, white, may be substituted.

4. **COMPOUND**, anti-freeze—For winter use in water-cooled machine guns. Quantities listed are for replacement purposes only, and do not include initial mixtures.

5. **ENAMEL**, synthetic—For touch-up purposes. When not available, any suitable olive-drab paint may be substituted.

6. **GREASE**, rifle—For use in cal. .30 M1 rifles only. Issued in CONTAINER, grease, M1.

7. **OIL**, linseed—For use in hot climates (humid or dry) to keep wooden parts in condition.

8. a. **OIL**, lubricating, preservative, light—Quantities based on needs of an infantry unit. For use on ground small arms above 0° F. Issued in 4 oz. containers for small arms use. Quart containers to be carried in addition to the 4 oz. containers by infantry rifle companies and those units authorized cal. .30 and cal. .50 machine guns. In emergency, OIL, engine, S.A.E. 10 may be substituted.

b. **OIL**, lubricating, preservative, special, is to be used on all ground small arms below 0°F., and on all aircraft guns under all conditions. In emergency, OIL, lubricating, for aircraft instruments and machine guns may be substituted.

c. **OIL**, lubricating, preservative, medium—For lubricating of ground small arms in regions of excessive rainfall. For use on small arms during landing operations, or regions of salt spray. May be used for temporary storage of small arms.

9. **OIL**, neat's foot—For cleaning and preserving leather. When not available, SOAP, saddle, may be substituted in the ration of 5 lbs. of SOAP, saddle, for 1 qt. of OIL, neat's foot.

10. **OIL**, recoil, light—For oil buffer in cal. .50 machine gun M2. In emergency, OIL, lubricating, preservative, special, may be substituted.

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## APPENDIX XI

### TOOL STOCKAGE CHART

| SPECIAL MAINTENANCE TOOL SETS | Med Auto Maint Co. | Med Maint Co. | Maint Co. (AA) | Heavy Maint Co. (FA) | Heavy Maint Co. (Tk) | Heavy Auto Maint Co. | Depot Co. (Main G.P.V.) |
|---|---|---|---|---|---|---|---|
| Set of Maintenance Tools for Repair of Gun, 3", M5 and Carriage, Gun, 3", M6 (Anti-Tank) | ------ | 1 | ------ | 1 | 1 | ------ | ------ |
| Set of Maintenance Tools for Repair of Gun, 3", M7 and Mount, Gun, 3", M5 | ------ | 1 | ------ | 1 | 1 | ------ | 1 |
| Set of Maintenance Tools for Repair of Gun, 4.5", M1 and Carriage, Gun, 4.5", M1 and M1A1 | ------ | 1 | ------ | 1 | ------ | ------ | 2 |
| Set of Maintenance Tools for Repair of Howitzer, 75mm, M2 and M3, and Mount Howitzer, 75mm, M7 | ------ | 1 | ------ | 1 | 1 | ------ | 1 |
| Set of Maintenance Tools for Repair of Howitzer, 105mm, M2, and M2A1 and Carriage, Howitzer, 105mm, M1A1, M2 and M2A1 | ------ | 1 | ------ | 1 | ------ | ------ | 1 |
| Set of Maintenance Tools for Repair of Howitzer, 105mm, M2A1 and Mount, Howitzer, 105mm, M4 | ------ | 1 | ------ | 1 | ------ | ------ | 1 |
| Set of Maintenance Tools for Repair of Howitzer, 105mm, M3 and Carriage, Howitzer, 105mm, M3, M3A1 and T6 | ------ | 1 | ------ | 1 | ------ | ------ | 1 |
| Set of Maintenance Tools for Repair of Howitzer, 155mm, M1 and Carriage, Howitzer, 155mm, M1 | ------ | 1 | ------ | 1 | ------ | ------ | 1 |
| Set of Maintenance Tools for Repair of Stabilizers | ------ | 1 | ------ | 1 | 1 | ------ | ------ |
| Set of Maintenance Tools for Repair of 155mm, Gun Materiel M1 | ------ | 1 | ------ | 1 | ------ | ------ | ------ |
| Set of Maintenance Tools for Repair of 8", Howitzer Materiel M1 | ------ | ------ | ------ | 1 | ------ | ------ | 1 |
| Set of Maintenance Tools for Repair of 8", Gun Materiel M2 | ------ | ------ | ------ | ------ | ------ | ------ | 2 |
| Set of Maintenance Tools for Repair of 240mm Howitzer Materiel M1 | ------ | ------ | ------ | ------ | ------ | ------ | 2 |
| Set of Maintenance Tools for Repair of 90mm Antiaircraft Gun Gun Materiel M1 and M1A1 | ------ | ------ | 1 | ------ | ------ | ------ | ------ |
| Field Maintenance Tools for General Instruments: | | | | | | | |
| Kit, Instrument Repair | ------ | 1 | 1 | 1 | 1 | ------ | ------ |
| Trench, Tubular, Set | ------ | 1 | 1 | 1 | 1 | ------ | ------ |
| Tools, Special | ------ | 1 | 1 | 1 | 1 | ------ | ------ |
| Fixtures, Special | ------ | 1 | 1 | 1 | 1 | ------ | ------ |

NOTE: Procedure is continued, as shown above, listing special maintenance Tool Sets to be carried as Stockage by various ordnance units, so planned to support expected tool shortages based upon the types and quantities of major items with using arms and services.

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APPENDIX 12a
EXPECTED ARTILLERY TUBE REPLACEMENT REQUIREMENTS

| | Minimum No. of Rds Life per Artillery Piece | Available by D+41 Tube Requirements | Available by D+51 Tube Requirements | Available by D+61 Tube Requirements | Available by D+71 Tube Requirements | Available by D+81 Tube Requirements | Available by D+91 Tube Requirements | Available by D+104 Tube Requirements | Total Tube Requirements D+104 | Artillery Tube Requirements each 30 days after D+104 |
|---|---|---|---|---|---|---|---|---|---|---|
| Gun, 37mm, M6 (Armd Car Tank) | 4,000 | 20 | 40 | 40 | 60 | 60 | 40 | 51 | .311 | 142 |
| Gun, 37mm, M1A2 (M15A1) (AA) | 4,000 | 10 | 10 | 10 | 20 | 20 | 20 | 10 | 100 | 51 |
| Gun, 40mm, Auto, M1 (AA) | 6,000 | 20 | 30 | 30 | 30 | 30 | 40 | 36 | 216 | 100 |
| Gun, 57mm, M1 (AT) | 1,800 | 20 | 40 | 40 | 40 | 40 | 40 | 15 | 235 | 139 |
| Gun, 75mm, M3, (Tank) | 8,000 | 20 | 20 | 30 | 30 | 30 | 30 | 33 | 193 | 155 |
| Gun, 76mm, (M18) | 2,000 | 20 | 20 | 28 | 30 | 20 | 20 | 20 | 158 | 90 |
| Gun, 90mm, M1A1 | 900 | 20 | 20 | 20 | 20 | 20 | 30 | 30 | 160 | 80 |
| Gun, 3", M7, (M10) | 2,200 | 20 | 20 | 30 | 30 | 30 | 30 | 2 | 162 | 225 |
| Gun, 3", Towed, M5 | 2,200 | 20 | 20 | 30 | 30 | 30 | 30 | 2 | 162 | 225 |
| Gun, 4.5", M1 | 1,500 | 10 | 10 | 15 | 10 | 10 | 15 | 21 | 91 | 56 |
| Gun, 155m, M1918A1 (M12) | 7,500 | ------- | ------- | 2 | 2 | 2 | 2 | ------- | 8 | 5 |
| Gun, 155m, M1, M1A1 | 1,200 | 70 | 70 | 70 | 75 | 70 | 70 | 60 | 480 | 100 |
| Gun, 8", M1 | 400 | 10 | 10 | 10 | 10 | 10 | 10 | 20 | 80 | 917 |
| Howitzer, 75mm, M3 (M8) | 12,000 | 0 | 10 | 10 | 0 | 0 | 5 | 0 | 25 | 10 |
| Howitzer, 105mm, M2A1 | 7,500 | 30 | 30 | 30 | 30 | 30 | 30 | 35 | 215 | 197 |
| Howitzer, 105mm, M3 | 10,000 | 2 | 2 | 6 | 6 | 3 | 2 | 1 | 22 | 25 |
| Howitzer, 105mm, M4 (Tank) | 7,500 | 5 | 10 | 10 | 10 | 10 | 10 | 19 | 74 | 43 |
| Howitzer, 155mm M1, | 6,000 | 20 | 20 | 20 | 30 | 30 | 30 | 14 | 183 | 54 |
| Howitzer, 8", M1 | 3,000 | ------- | 10 | 10 | 10 | 10 | 10 | 9 | 59 | 28 |
| Howitzer, 240mm, M1 | 1,500 | ------- | 5 | 5 | 5 | 5 | 5 | 3 | 28 | 21 |

APPENDIX 12b
EXPECTED GAS CHECK PAD REQUIREMENTS

| | Estimated Life of Check Pad | To be Available by D+41 | To be Available by D+51 | To be Available by D+61 | To be Available by D+71 | To be Available by D+81 | To be Available by D+91 | To be Available by D+104 | Total Requirements of Check Pad to D+104 | Requirements each 30 days after D+104 |
|---|---|---|---|---|---|---|---|---|---|---|
| Gun, 4.5, M1 | 500 rds. | 40 | 40 | 40 | 40 | 40 | 40 | 37 | 277 | 168 |
| Gun, 155mm, M1A1 | 500 rds. | 150 | 200 | 200 | 200 | 200 | 150 | 70 | 1,152 | 240 |
| Gun, 8", M1 | 500 rds. | 10 | 10 | 10 | 5 | 5 | 10 | 8 | 58 | 23 |
| How, 155mm, M1 | 500 rds. | 300 | 300 | 300 | 300 | 300 | 300 | 400 | 2,200 | 648 |
| How, 240mm, M1 | 500 rds. | 10 | 10 | 20 | 10 | 10 | 10 | 14 | 84 | 63 |
| How, 8", M1 | 500 rds. | 50 | 50 | 50 | 50 | 50 | 50 | 36 | 336 | 168 |

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## APPENDIX 12c
## EXPECTED EQUILIBRATOR REPLACEMENT REQUIREMENTS

| | To be Available by D+41 | To be Available by D+51 | To be Available by D+61 | To be Available by D+71 | To be Available by D+81 | To be Available by D+91 | To be Available by D+104 | Total Requirements to D+104 | Requirements Each 30 Days after D+104 |
|---|---|---|---|---|---|---|---|---|---|
| Gun, auto, 37mm, M1A2 (D42139) | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 5 | 2 |
| Gun, 40mm, auto, M1 (D50411) | 1 | 2 | 2 | 4 | 3 | 2 | 1 | 15 | 6 |
| Gun, 3", M5, w/carriage (38955) | 1 | 1 | 2 | 4 | 2 | 2 | 1 | 13 | 5 |
| How, 155mm, M1, w/carriage, M1 (D37593) | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 10 | 4 |
| How, 75mm, M3, w/carriage M8 | 4 | 4 | 6 | 10 | 6 | 4 | 4 | 38 | 15 |
| How, 105mm, M2A1 (D36732) | 6 | 10 | 15 | 26 | 15 | 10 | 6 | 88 | 35 |
| How, 105mm, M3 (D31374) | 1 | 2 | 2 | 4 | 3 | 2 | 1 | 15 | 6 |
| How, 155mm, M1, w/carriage M1 (D39593) | 4 | 4 | 6 | 10 | 6 | 4 | 4 | 38 | 15 |
| Gun, 155mm, M1A1 (R. H. Assy) (D5774A) | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 6 | 2 |
| Gun, 155mm, M1A1 (L. H. Assy) (D5774B) | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 6 | 2 |
| How, 8", M1 (R. H. Assy) (D5774A) | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 10 | 4 |
| How, 8", M1 (L. H. Assy) (D5774A) | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 10 | 4 |
| Gun, 90mm, M1A1 (D42081) | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 10 | 4 |
| How, 240mm, M1 (D47664) | 1 | 2 | 3 | 6 | 3 | 2 | 1 | 18 | 7 |
| Gun, 8", M1 | 2 | 2 | 4 | 7 | 4 | 2 | 2 | 23 | 9 |

## APPENDIX 12d
## RECOIL MECHANISM REPLACEMENT REQUIREMENTS

| | To be Available by D+41 | To be Available by D+51 | To be Available by D+61 | To be Available by D+71 | To be Available by D+81 | To be Available by D+91 | To be Available by D+104 | Total Requirements to D+104 | Requirements Each 30 Days after D+104 |
|---|---|---|---|---|---|---|---|---|---|
| Gun, auto, 37mm, M1A2 | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 10 | 4 |
| Gun, 40mm, M1 | 1 | 2 | 2 | 4 | 3 | 2 | 1 | 15 | 6 |
| Gun, 57mm, M1 | 1 | 2 | 2 | 4 | 3 | 2 | 1 | 15 | 6 |
| Gun, 3", M5 (w/carriage M1) | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 10 | 4 |
| Gun, 3", M7 (w/mount M5) | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 8 | 3 |
| Gun, 75mm, M3 | 1 | 2 | 2 | 4 | 3 | 2 | 1 | 15 | 6 |
| How, 75mm, M3 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 5 | 2 |
| How, 105mm, M2A1 | 10 | 20 | 45 | 62 | 45 | 20 | 10 | 212 | 85 |
| How, 105mm, M3 | 4 | 4 | 6 | 10 | 6 | 4 | 4 | 38 | 15 |
| Gun, 90mm, M1A1 | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 10 | 4 |
| Gun, 4.5" M1 (w/carriage M1) | 2 | 2 | 4 | 4 | 4 | 2 | 2 | 20 | 8 |
| How, 155mm (w/carriage M1) | 4 | 4 | 6 | 10 | 6 | 4 | 4 | 38 | 15 |
| Gun, 155mm, M1A1 | 2 | 2 | 5 | 5 | 5 | 2 | 2 | 23 | 9 |
| How, 8", M1 | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 10 | 4 |
| Gun, 8", M1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 3 | 1 |
| How, 240mm, M1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 5 | 2 |
| Gun, 37mm, M6 | 4 | 4 | 6 | 12 | 6 | 4 | 4 | 40 | 16 |

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# ANNEX 5

# AN ARMY ORDNANCE SOP

# ORDNANCE STANDARD OPERATING PROCEDURE FOR COMBAT

## SECTION I—Class V Supply

1. **General.** a. The administrative control of storage and issue of all finished types of Class V supplies (Ordnance, Engineer, and Chemical) within the Army is assigned to the Ordnance Service. Recommendations for stock levels to be maintained will be the responsibility of the Chief of the appropriate Supply Service of the echelon concerned.

b. Under normal conditions, supply of Class V supplies to units assigned or attached to a Corps in contact with the enemy will be a responsibility of Corps. Ordnance Ammunition troops operating forward ASP's, as well as other ammunition troops operating in the Army service area furnishing supply service to Army units and to Corp(s) in reserve, are assigned to Army for operational control.

c. Corps Ordnance Officers are authorized direct communitations with the Depot Commander of ASP's assigned to the supply of the corps. The Corps Ordnance Officer is expected to recommend to Army, levels of supply for such ASP's, and time and place of establishment proposed for new supply points. The Corps Ammunition Officer will receive a copy of Status of Stock reports from ASP's supply corps, and is authorized to limit issue and designate substitutes when necessary. Information with respect to tactical plans that affect ammunition supply should be furnished in advance to the Army Ordnance Officer.

d. Class V supply to Corps ASP's and to Army troops direct is a responsibility of the Army. Army will establish ASP's to serve Army troops and to supplement Corps facilities as required.

e. Ammunition is a critical item of supply and will not be wasted with indiscriminate fire or by being abandoned at gun positions or bivouac areas. If the situation calls for dumping ammunition on the ground in anticipation of expenditure, the Division or separate unit will be responsible for its protection and evacuation and a report will be made to the Ordnance Officer of the next higher Headquarters within 24 hours giving exact location and contents of the dump.

f. No toxic gasses in any form will be received, issued, stored or expended by any unit of the Army without specific authority from the Army Commander.

g. Ammunition Officers of all echelons are encouraged to keep in close contact with tactical commanders so that at all times they may be in a position to anticipate future needs. The attention of all concerned is invited to the urgent necessity for close and complete liaison between the Artillery and Ammunition Officers of all echelons.

2. **Stock Levels.** a. All commanders are responsible for maintaining within units, at all times except when otherwise directed by Corps or Army, full basic load as established by Army. Army will be advised promptly of any temporary changes authorized by Corps.

b. Total stock level of all ammunition under Corps control, in excess of basic load, will not exceed two (2) units of fire, except by authority of this Headquarters. Within this limitation, Corps will establish stock levels for ASP's under their control at the minimum necessary to handle all anticipated issues.

c. Restockage of Corps ASP's to maintain established level will be effected by Army, based on daily Status of Stocks reports and continuous interchange of information between Corps and Army Ammunition Officers. In emergencies, Corps Ammunition Officers will make requests direct to the Army Ammunition Officer by the fastest practicable means. Under certain conditions, authority to effect resupply to Corps ASP's may be delegated to an Army Ammunition Battalion Commander.

3. **Issues.** a. Attachment of separate units to Divisions and Corps includes attachment for Class V supply, and all requirements for attached units will be cleared through, or coordinated by, the Division or Corps Ammunition Officer concerned.



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Munitions Officers or S-4's will clear ammunition requirements for separate Army units. If a mission is assigned to a separate composite force, the Task Force Commander will designate a Munition Officer to handle all Class V supply for the force.

b. Army troops will draw Class V supplies from designated ASP's upon presentation of a Transportation Order signed by the Munitions Officer or S-4. Transportation Orders will bear a certificate substantially as follows: "I certify that the above items are *(1) required to refill this unit to its proper basic load replacing ammunition expended in combat, or *(2) being drawn in anticipation of future expenditures." (*strike out one).

c. Where stocks of certain items so require, the Army or Corps Ordnance Officer will limit the issue or provide a proper substitute. Except as indicated, no ammunition credit system will be used.

4. **Reports.** a. Reporting period ends at 0600 hours. Combat units and all A.S.P's report daily, non-combat units monthly as of the 25th. Reports to reach Army Ammunition Office by 1500 hours same day.

b. Corps submit separate Status of Stocks report for each ASP, indicating On Hand Last Report, Received, Issued, On Hand End of Period, Target (Approved Stock Level), and consolidated Expenditure Report for all units in Corps.

c. Army troops submit expenditure report for the reporting period, direct to Army Ammunition Office.

5. **Disposal of Unexploded Bombs and Duds.** a. Disposal of UXB and "Duds" (except land and AP mines) is a responsibility of Ordnance. Bomb Disposal Units will be employed for the purpose, the cooperation and assistance of Engineers being requested by appropriate Ordnance Officers when necessary. BD Squads will normally be attached to Corps as required.

b. Units will report unexploded aerial bombs, wherever found, by the fastest possible means to the Ordnance Officer of the next higher echelon. Report will specify exact location in terms of a definite distance on a given azimuth bearing from an easily recognizable terrain feature, and will indicate whether the presence of the UXB is hampering operations or endangering important facilities. Within the Army area reports will be sent direct to the Army Bomb Disposal Officer. Units are responsible for marking locations and establishing suitable safety precautions.

c. "Duds" and unserviceable U. S. ammunition (except as follows) will be destroyed where found. U. S. artillery ammunition unserviceable only by reason of dented cartridge cases will be evacuated to nearest Class V supply point.

6. **Salvageable Components.** a. Salvageable inert ammunition components will be turned in to the nearest Class V supply point, after careful examination to assure freedom from explosives. Following components are designated as salvageable: bandoleers, clips, metallic links, fabric belts, cartons, boxes and their tin lining, fiber containers, cloverleaf packs, and fired cartridge cases. Unit Commanders are responsible that a maximum of salvageable material is turned in as indicated above.

7. **Captured and Confiscated Ammunition.** a. Serviceable captured ammunition in original containers (except mines and grenades) will be evacuated to the nearest ASP of Class V depot. Where quantities are considered excessive for movement, ammunition will be kept under guard and reported with exact location to the Ordnance Officer of the next higher headquarters for disposition. Unserviceable and loose captured ammunition and explosives will be destroyed where found. The appropriate Ordnance Officers (with Engineer and CWS assistance where necessary) will furnish personnel for such destruction when requested. Personnel not specially trained will under no circumstances, move or disturb loose, scattered, fired or destroyed enemy munitions. Under no circumstances will enemy grenades in any condition be moved.. Enemy mines, whether loose or in original containers, will not be evacuated to ASP's or depots, but will be disposed of or destroyed as directed by the appropriate Engineer Officer.

b. Enemy ammunition in original containers, returned to ASP's as provided in par. 7 a above, will be stored separately and at a substantial safety distance from U. S. ammunition, and under no circumstances will be intermingled in any way with U.S. ammunition.

8. **Miscellaneous.** a. Class V supply points (A.S.P's and Depots) within Army

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will be operated in accordance with technical instructions issued by the Army Ordnance Officer.

b. In the combat zone, ammunition will not be expended in training unless specifically allocated for that purpose by this Headquarters. Requests for training ammunition will be directed to the attention of A.C. of S. G-3, Headquarters Army through channels.

c. Abbreviated standard nomenclature will be used throughout the ammunition supply system. The AIC code will *not* be employed.

## SECTION II—Class II & IV Supply

1. **Supply Policy.** a. The Army Ordnance Officer is responsible for supply to Divisions, separated Army units, and Corps Ordnance Battalions.

b. Corps Ordnance Officers are responsible for supply of Corps troops, and may issue supplies, or allocate controlled items, to Divisions in an emergency.

c. Attachment of separate units to Divisions does *not* normally include attachment for Ordnance Class II and IV supply or maintenance. In general, the supply of Class II and IV remains in organic channels regardless of tactical attachment or geographic location.

d. Replacement major items will be issued complete with accessories. Unserviceable major items returned for exchange will be accompanied by accessories.

e. Replacement combat vehicles will be issued combat loaded, including ammunition.

f. Unserviceable items for exchange will not be taken to Depot, but will be turned in to maintenance units, a tally being received for presentation at Depot.

g. All echelons of Ordnance supply will maintain an adequate "back-order" system.

2. **Definition.** a. Ordnance Class II supplies will include all major items, tools, spare parts and supplies listed in T/E or T/BA, all items listed in SNL as supplementary to the T/E or T/BA, replacement items, accessories, parts, and supplies carried by Ordnance companies as basic load.

b. Ordnance Class IV supplies are usually special in nature and normally will be issued direct to the units concerned. Material for waterproofing is Class IV.

3. **"Controlled" Items.** a. All class IV items are designated as "controlled". Items required to be reported on Materiel Status Report are "controlled" unless specifically released to normal supply.

b. The Army Ordnance Officer will designate as "controlled", other Class II items and supplies as deemed necessary, and will publish instructions regarding the issue and distribution of controlled items.

4. **Major Items.** a. Divisions and separate units, when initially assigned or attached to Army, will submit a complete Ordnance Materiel Status Report (See Incl. #1) within three days. This initial report will be accompanied by true copies of all special authorizations for equipment in excess of, or different from, T/E, from theater or higher authority.

b. The Ordnance Materiel Status Report will be the basis for supply of all major items listed thereon. Shortages and reported combat losses will be replaced without requisition, within the limits of availability. Periodic Materiel Status Reports will be submitted in accordance with Inclosure #1 attached.

c. Ordnance Depots and Maintenance Companies will issue major items in accordance with written allocations. Corps Ordnance will furnish Army copy of allocations issued by Corps.

d. *Direct exchange* of major items will be utilized to the greatest practicable extent to maintain full combat efficiency. Direct exchange of controlled items may be effected without allocation when the items to be received is repairable within the scope of normal 4th echelon facilities.

e. In combat, a daily report of major items lost in combat or from other causes will be made by all units as follows:

(1) By Army troops direct to Army.
(2) By Corps to Army for Corps troops.
(3) By Divisions direct to Army with an information copy to Corps.
(4) Report will be furnished informally to the Army Ordnance Officer by the

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most expeditious means. Items will be classified as: (a) Lost in combat, (b) Lost from other causes, or (c) Evacuated, not replaced.

(5) Only items totally destroyed, lost to the enemy, missing, or damaged to the extent making them unacceptable for direct exchange will be reported under a and b above. Items eligible for exchange, but not replaced by reason of non-availability, will be reported under c above. The same item will be reported only once.

(6) Corps Ordnance Officers will be responsible that reports of all units under Corps control including Divisions are checked for accuracy, that duplication or repetition is eliminated, that items recovered are reported, and that equipment discipline is maintained.

(7) Negative reports are not required.

5. **Parts, Supplies, and Accessories.** a. Ordnance Depots will normally operate under Army control, and will supply designated Division, Corps, and Army Ordnance units. Separate Corps and Army units other than Ordnance will ordinarily place all requirements for parts, supplies, and accessories on Ordnance Maintenance units assigned to their support.

b. Requests and requisitions for items for stock will be separated from requirements for immediate use and the purpose indicated. Quantities on hand will be shown.

c. Ordnance maintenance units are authorized a basic load of spare parts, but load will not exceed the unit's ability to carry or to accomplish repairs. Normal stock levels: (1) Division Ordnance, in accordance with appropriate SNL (2) Corps and Army maintenance units—15 days (3) Army Depots—30 Days.

d. Stocks of parts and accessories in units other than ordnance will not exceed "must" lists of organizational spare parts and accessories except as specifically authorized.

e. Direct exchange of major unit assemblies and unserviceable parts or accessories will be used to the maximum extent to decrease administrative requirements. Every effort must be made to return unserviceable assemblies and sub-assemblies for overhaul and reconditioning. Assemblies will be complete with required accessories, protected against weather damage by proper preservative, and boxed or crated when normal handling precautions indicate the necessity.

## SECTION III—Maintenance, Recovery, and Evacuation

1. **Policy.** a. The attention of Corps Ordnance Officers is directed to the necessity for establishment of Division and Army Ordnance Maintenance facilities *well forward.* In general, these respective third echelon facilities should be on a line with the service echelons of Divisional and Corps Artillery Battalions.

b. Under normal conditions, there will be at all times, at least one battalion with the sole mission of supporting a designated corps. Further, this battalion will be organized with sufficient ordnance companies to permit the corps Ordnance officer to retain full responsibility for 3rd echelon maintenance (except for special items) and forward area recovery and evacuation.

c. The Corps Ordnance officer is requested to advise Army Ordnance promptly and continuously with respect to required changes in the compositions of the forward battalions, and will bring to the attention of the Army Ordnance officer any deficiencies in the service rendered by the forward battalion.

d. The Battalion Commander is directed to comply with the wishes of the Corps Ordnance Officer in all respects connected with the time, place, and manner of employing his repair and evacuation facilities, and furnishing the supply of other than controlled items to all non-divisional corps units.

e. Other Army Ordnance Battalions (For example 4th echelon units) than the aforementioned, will be placed in close support of corps. Facilities for the maintenance and repair of AA directors and fire control equipment, and heavy artillery, will normally be held under Army Control.

f. To maintain essential tactical equipment, particularly weapons, at full combat efficiency direct exchange will be emphasized. When required repairs cannot be performed at the unit, the item will be exchanged prior to evacuation, within the limits of availability.

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g. The fullest exploitation of all available maintenance facilities must not be handicapped by too-rigid definition of the limits of work to be performed in the various echelons. However, priority must be given in all cases to the completion of work on hand properly within the scope of the echelon concerned. Free evacuation is essential. Whenever doubt exists as to the ability to repair an item promptly with facilities and parts on hand, and with available manpower, the item should be evacuated.

h. Recovery, Evacuation and reclamation of Ordnance materiel will follow maintenance channels.

2. **Responsibility.** a. All elements of the maintenance channel will maintain continuous contact with maintenance units to their front, furnishing all possible assistance, and assuring a continuous flow of information to the Army Ordnance officer.

b. The Army Ordnance officer, through commanders of Ordnance Battalions, will furnish assistance to Corps and Divisions in accomplishing their mission; maintain continuous contact with and provide maintenance support to units having specialized equipment not within the scope of maintenance facilities furnished the Corps; evacuate from Corps to Army Collecting Points; provide maintenance support for all Army troops; furnish road patrol, recovery and repair service on main supply routes within the Army service area; conduct continuous spot check of motor vehicles of Army troops; occasionally and informally inspect materiel and spot check vehicles within Corps and Divisions: and furnish 4th echelon support for all elements of Army.

c. Corps Ordnance Officers, utilizing the Ordnance Battalion designated to support service to the Corps, will furnish direct and continuous maintenance support to all Corps troops; supervise recovery operations throughout the Corps sector; conduct continuous informal inspections of Ordnance materiel in Corps troop units: perform spot checks of vehicles in Corps units; evacuate from Corps troops and Division Collecting Points to a Corps Collecting Point; augment Division facilities to the extent possible with resources available; supervise the operation of Army maintenance units temporarily assisting Corps; provide road patrol, recovery and repair service on main supply routes within the Corps service area; and keep Army Ordnance Battalions in support advised of the location of troops and Ordnance installations within Corps. He will request assistance from the Army Ordnance Officer as to additional Ordnance troops required to be attached to Corps.

d. The Corps Ordnance Officer is authorized and encouraged to communicate directly with the Battalion Commander of the supporting forward battalion on all matters connected with Ordnance support for elements of the Corps.

e. Authority to move units of forward battalions, within the limits of the Corps area, is delegated to the Battalion Commander. He is directed to locate his elements in accordance with directions of the Corps Ordnance Officer, who is responsible for securing needed concurrence as to time of movement and location from Corps G-3 and G-4. The Corps Ordnance officer should furnish the Battalion commander continuous information concerning location and prospective movement of Corps Units.

f. Division Ordnance Officers, utilizing organic Divisional facilities, will furnish maintenance support to all elements of the Division; augment unit recovery facilities; conduct continuous informal inspections of Ordnance materiel in the Division; perform spot checks for motor vehicles to enforce proper 1st and 2nd echelon maintenance of motor vehicles; evacuate to a Division collecting point; and will request assistance from Corps when organic facilities are insufficient to accomplish these missions.

3. **Collecting Points.** a. Collecting Points established by Divisions, Corps, and Army will be manned continuously by qualified personnel. Each Collecting Point will have one or more inspectors on duty, qualified to classify items for (1) evacuation to higher echelon, (2) immediate repair, or (3) not repairable.

b. Any item presented to any Collecting Point will be accepted, and the unit presenting the item will be furnished a tally indicating the classification of the item as above. Tally will be used as a basis for direct exchange when applicable.

4. **Cannibalizing.** The removal of any part or accessory from any item for repair of another item (commonly termed cannibalizing) is strictly prohibited, except

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by Ordnance personnel under the supervision of an officer. Cannibalizing within Ordnance units, Division, Corps, or Army, will be governed by the following principles:

a. Items that are repairable in 3rd echelon (medium maintenance units and Divisional light maintenance companies) will not have any parts removed without the specific approval of the responsible Division, Corps, or Army Ordnance Officer. Divisions will not strip any item which has come into their hands from unit not organically a part of the Division.

b. When an item has been inspected and classified as repairable in any echelon of maintenance, parts, accessories, or assemblies, or sub-assemblies may be removed only when immediately required for the repair of deadlined material. Whenever any part or accessory is removed from such an item, it will be replaced by an unserviceable part or assembly, reassembled to the item.

c. When an item has been properly inspected and classified as not repairable, any Ordnance unit is authorized to completely strip the item. Partial stripping will not be resorted to, since the remaining parts are inevitably subject to weather damage and loss. Such items will be reduced to scrap and all serviceable parts, accessories, assemblies and sub-assemblies removed, protected by suitable preventives, and returned to stock. Where a portion of the parts so secured will be surplus stock for the unit doing the stripping, such surplus will be returned to the next higher echelon of supply at once. Unserviceable, but repairable assemblies will be reconditioned or exchanged and evacuated.

5. **Battlefield Recovery.** Conservation of materiel is of the utmost importance in combat. All commanders of tactical units are charged with the prompt recovery and evacuation of all Ordnance materiel, repairable or unrepairable.

a. Removal from the field of battle will be as prompt as possible under the circumstances, every effort being made to avoid additional damage.

b. Commanders will exert effort to prevent the pillaging, cannibalizing, or stripping of damaged or abandoned material.

c. All Ordnance units will assist in direct battlefield evacuation when requested. Such assistance should be called for promptly whenever shortage of equipment or quantity of material to be evacuated prevents prompt and complete clearing of the battlefield.

d. Corps Ordnance Officers are responsible for continuous forward area reconnaissance to assure compliance with these policies.

6. **Abandoned Equipment.** Ordnance equipment will not be abandoned, even though temporarily unserviceable. Abandoned items, including vehicles, will be confiscated and evacuated by the Ordnance Officer. Where unnecessary damage has been incurred by reason of unjustified abandonment, an effort will be made to establish the facts and enforce financial responsibility.

7. **Limited Service Vehicles.** a. When any vehicle is operable, but by reason of extended use and condition, is believed to require major overhaul before it will have completed an additional 6000 miles, it may be presented to a Division, Corps, or Army maintenance company for complete technical inspection (Form 461, 462, or 463).

b. If, as a result of the inspection, the vehicle is classified "limited service," compression pressure test on each cylinder will be recorded on the inspection report. The unit will forward a copy of the inspection report with the next periodic Materiel Status Report, and will indicate the vehicle as "LS" by suitable entry in the remarks column. It will be so entered until replacement has been effected.

c. "LS" vehicles will be retained by the using organization until called in for exchange by the Army Ordnance Officer.

8. **Reports.** a. All third and fourth echelon shops will prepare and forward to the Army Ordnance Officer direct, monthly as of the last day of the month, complete report of all parts, supplies, and accessories consumed during the month. Items issued to 2nd echelon units will be listed as consumed. Items reconditioned and returned to stock will be deducted. Items transferred to other Ordnance units will not be included. Reports will be prepared in triplicate by Divisions, and by companies, and will not be consolidated. They will be forwarded to reach Army not later than the 10th of the month.

b. Ordnance Officers of Corps and Divisions, and Supply Officers of separate

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Army Units, will submit to the Army Ordnance Officer semi-monthly a brief informal memorandum covering the following:

(1) Special maintenance difficulties.

(2) Special difficulties with materiel.

(3) Any anticipated extraordinary demands for supplies, assemblies, or major items in greater than normal quantities.

(4) Critical supply shortages seriously affecting combat efficiency. Specific items and quantities required will be listed.

(5) Negative reports are not required, but in the absence of a report it will be assumed that conditions are normal.

(6) This informal report should accompany the Materiel Status Report, and will serve to keep the Army Ordnance Officer advised of the special needs of all units, in order that assistance may be rendered promptly, and supply and maintenance requirements may be anticipated.

c. Non-divisional Ordnance Companies will submit a daily report of operations, in accordance with instructions published by the Army Ordnance officer.

## SECTION IV—Captured Materiel

1. **Policy.** In the heat of combat, captured enemy Ordnance materiel may be placed to immediate use by combat units to the extent required by the situation. Due to the difficulty of supply and maintenance, however, it is not the policy of Army that such materiel should be retained in use except for the immediate emergency.

2. **Responsibility.** All commanders are enjoined to exercise closest supervision to prevent the collecting of souvenirs at the expense of possible future use of captured materiel by ourselves or our allies. The retention of captured equipment by individuals or units is not authorized.

3. **Evacuation.** Captured Ordnance materiel will be evacuated in the same manner and through the same channels as U. S. Ordnance materiel and will in all cases be collected in Corps and Army collecting points as rapidly as possible. Particular attention will be given to the evacuation of sighting equipment and optical instruments and the preservation of all accessories vital to the performance of the item. It is especially important that sighting and fire control equipment be plainly marked as to the weapon to which it applies.

4. **Reports.** Army collecting points and Corps Ordnance Officers will furnish a daily report to the Army Ordnance Officer of all captured materiel on hand at the collecting point and the amount received during the preceding 24 hours. This report will classify the materiel as serviceable or unserviceable, and where possible, will indicate the unit or zone of action from which received.

5. **Ordnance Intelligence.** All echelons of Ordnance Service will be on the alert to discover and secure items of enemy equipment believed to be new or unusual.

a. Ordnance Officers of Corps or Divisions will make immediate report of the facts to G-2 of their own staff, copy to the Army Ordnance Officer.

b. Materiel will be reported to the Ordnance Intelligence Officer, Army, and disposed of as directed.

c. Every effort will be made to acquaint interested officers of all staffs with the details of new enemy equipment and ammunition, but it is essential that the equipment itself be evacuated through Ordnance Technical Intelligence channels to assure availability of all information through a single source, and to permit early technical analysis.

d. Ordnance Officers of all echelons, and Ordnance Battalion Commanders, will designate an officer as Ordnance Intelligence Officer, and will advise the Ordnance Officer, Army, of the officer so designated. Direct communication between officers so designated and the Ordnance Intelligence Officer ——— Army will be effected, to assure maximum immediate distribution of information and data.

Colonel, Ord. Dept.,
Ordnance Officer.

1 Incl:
Ordnance Materiel Status Report Instructions
(Forms will be furnished later)

APPROVED:
Colonel, G. S. C.,
A. C. of S. G-4



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# ANNEX 6

## A DIVISION ORDNANCE SOP
## (For an Armored Division)

1. **General.** *a.* In order to establish a uniform method of operation, and to develop a clear understanding of the system of supply to be employed by this Division, the following general procedure of supply, maintenance, and evacuation is announced.

*b.* Departure from this standard procedure will be made whenever the situation demands.

*c.* All phases of supply, maintenance, and evacuation will be supervised by G-4.

*d.* Combat Commanders are responsible for the supply, and evacuation of all elements of their command.

*e.* It is expected that Army will establish, and arrange protection for, rail or truck head supply points for Class III-V supplies within a night haul of the forward elements of the Division.

*f.* Replenishment of ammunition, gasoline, and oil has priority over all other supply functions.

*g.* Only insofar as is possible will the distribution of supplies be confined to hours of darkness. Whenever necessary, supplies will be moved forward to combat areas during daylight, using dispersed vehicle formations to minimize casualties.

*h.* The S-4 of the major units of Combat Command will act as S-4 for the Combat Command.

*i.* Combat Command S-4's will function from their forward echelons.

*j.* Daily Reports of expenditure of ammunition, gas, oil, and rations, including estimates of future needs when appropriate, will be made for each battalion separately and forwarded thru Combat Command Supply Officers to supply service concerned, or to G-4, if he is more readily available, for transmission to the supplying service.

*k.* Ammunition dumps will *not* be established by regiments or lower units, unless ordered by Division Headquarters.

2. **Supply.** *a.* Water:

(1) The Division Engineer will assign each Combat Command and Division Trains one or more water purification units. Location of water DPs, established after consultation with the commander of the element concerned, will be reported to G-4.

(2) For units other than the above, the Division Engineer with established water distribution points as directed by G-4.

*b.* Rations:

(1) Data for the daily telegram will be furnished G-4 by G-1 at 0800 daily, based on which the Quartermaster will notify Army by daily telegram of rations required.

(2) The Division Quartermaster will issue rations in bulk to S-4's of Combat Commands and of other units which may require direct distribution. Distribution may be accomplished directly from cars at railhead, or the Quartermaster may use unit train vehicles to haul rations from railhead to a concealed position for breakdown and issue. Distribution to units of Combat Commands, Division Reserves, and Trains, will be made by S-4's of respective commands.

(3) The type and number of reserve rations will be published in Division Orders.

*c.* Ammunition—At Mines—Chemicals:

(1) Based on reports of expenditure or requirements for projected operations, it is expected that Army will make available, at an Army ammunition supply point, required amounts of ammunition of all classes.

(2) Unit trains will normally transport ammunition from the ammunition supply point to their own units.

(3) Transportation from the Supply Battalion may supplement unit ammunition vehicles.



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(4) The unit requiring ammunition will initiate a "Transportation Order". A representative of the unit will clear thru the Division Ammunition Office and present the transportation order for approval. The approved order will constitute his authority to draw ammunition at the ammunition supply point.

*d.* Fuel and Lubricants:

(1) From information supplied by G-4 the Quartermaster will notify Army of amounts needed daily; Army will establish supply points.

(2) Supply to units will be by *exchange* of five gallon containers at the gas supply point by requisition thru G-4.

*e.* Class II Supply. T/BA items (clothing, gas masks, tools, vehicles, signal equipment etc.) by requisition thru G-4.

*f.* Class IV Supplies. Fortification and construction-material requisitions will be submitted to G-4 as necessary.

3. **Evacuation.** *a.* Personnel:

(1) Separate Battalion medical detachments and battalion medical sections of the regimental medical detachment will not establish aid stations but will remain mobile and will closely support their respective battalions in order to render first echelon medical treatment.

(2) Evacuation from the several mobile aid stations will be made by the organizational vehicles of the several mobile aid stations to treatment stations.

(3) Combat Command Headquarters will receive medical aid from a Headquarters Section of a regimental medical detachment.

(4) The Medical Battalion will establish treatment stations. The location of such stations will be announced by G-4, or Combat Commanders.

(5) The surgeons of the senior medical unit attached to a Combat Command will be the Combat Command Surgeon. Combat Command Surgeons will report to G-4 (thru Division Surgeon) the location of their medical installations.

(6) Medical Battalion will evacuate from treatment stations to *collecting point,* established by Medical Battalion, (such point may serve one or both Combat Commands).

(7) The Division Surgeon will maintain liaison with Army, and will make the necessary arrangements for evacuation from collecting points to hospitals by the Army.

*b.* Vehicles:

(1) Unit Service Parks will be established from which unit maintenance will operate.

(2) Division Service Parks will be established from which the Maintenance Battalion will operate. Location of these parks will be in the Division Administrative Order. The Commanding Officer of the Maintenance element in support of a Combat Command will maintain close liaison with the supported unit by personal contact with Combat Commanders and with commanders of forward units. By use of the command or administrative net of the unit which he is visiting, he will order in code parts or repair crews forward to disabled vehicles, and will accomplish repairs to get the vehicles back in operation.

(3) Liaison detachments from the Maintenance Battalion will function in close support of "unit" maintenance, coordinating "unit" maintenance activities with division maintenance facilities.

(4) Axis of vehicle evacuation will be announced by G-4.

(5) Units will be responsible for evacuation to the axis of evacuation. As soon as a higher echelon maintenance crew arrives, the lower echelon maintenance crew will rejoin its unit.

(6) On the march, all disabled vehicles will be towed to unit service parks. If unable to resume the march the next day, they will be turned over to the Maintenance Battalion.

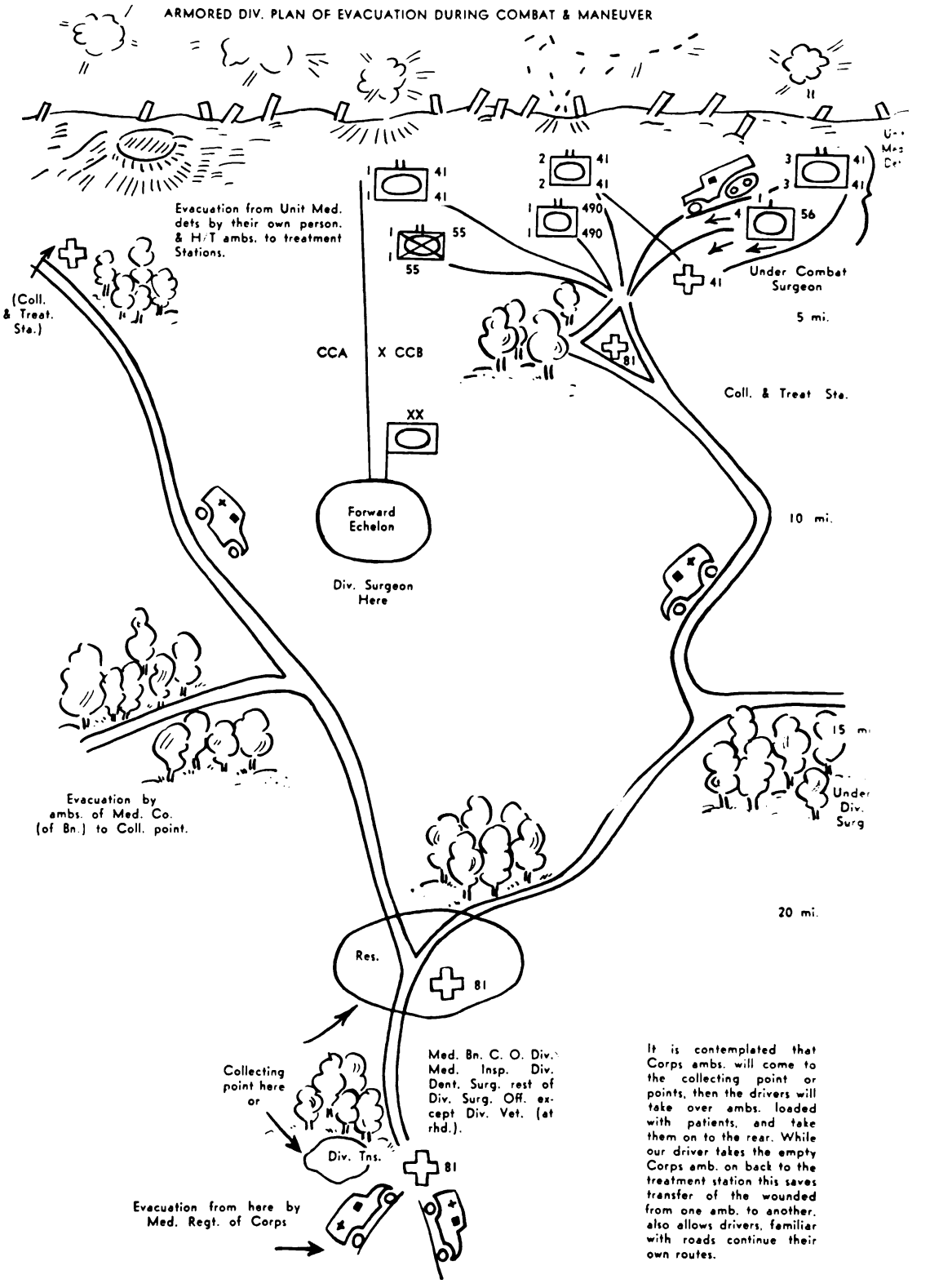
(7) The crews of a disabled tank, and at least one man with any other disabled vehicle, will remain with the vehicle and will return the vehicle to the unit upon completion of the repair.

(8) Ordnance supplies will be secured directly from the nearest division maintenance unit. Items deemed recoverable will be turned in to this unit.

4. **Salvage.** *a.* Normally the Railhead Officer will act as Salvage Officer.

*b. Salvage clothing* and *equipment* will be turned in by Unit Supply Officer to

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ailhead with necessary reports. Army will forward articles in exchange on the aily train.

c. Salvaged vehicles and weapons are collected by units at unit service park. Small arms should be evacuated with casualties to treatment stations.)

d. The Division Ordnance Officer employing the Maintenance Battalion will vacuate all salvage material from unit parks and division treatment stations, o the division park. Repaired salvage material or usable parts thereof will be eissued to the approriate agency, the balance turned over to Army. Locations of this material will be reported to Army G-4.

e. *Shoes,* in *whatever* state of repair, will be tagged with name of owner. Final decision as to repairability will be left to Army shoe repair installations.

5. **Captured Material.** Will be gathered promptly by units at unit service parks, and, after examination by unit S-2's, will be evacuated by division service units to the division service park.

6. **Prisoners of War.** G-4 will announce an axis of prisoner evacuation in rear of each major task force. M.P. platoon will establish collecting points along this axis. Army will evacuate them from these points.

7. **Traffic Control.** *a.* Within their zones of advance when on the march, and in their combat zones, Combat Commanders will be responsible for traffic control. They will report traffic priorities, restrictions, and use of lights, which might affect supply and control measures, to G-4. March graphs and traffic diagrams will be made up and followed.

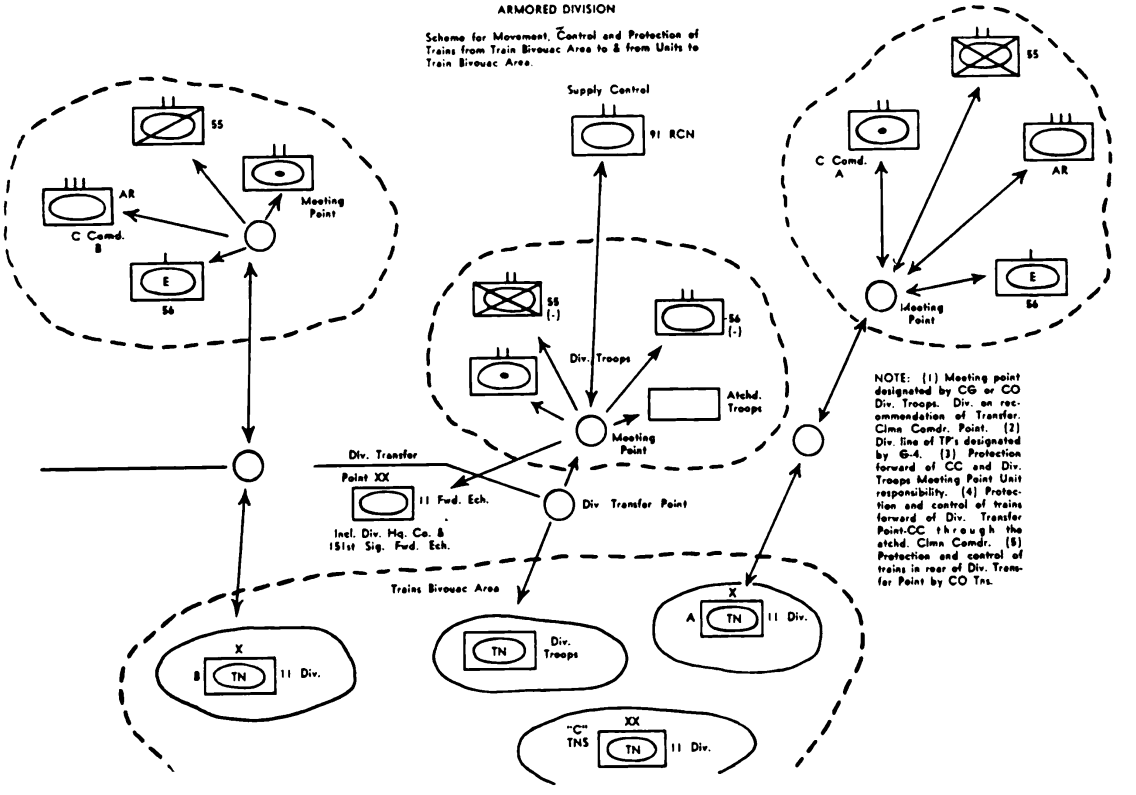



**Figure 27. Scheme for Movement, Control and Protection of Trains from Train Bivouac Area to and from Units to Train Bivouac Area.**

b. G-4 will (1) designate the main supply roads; (2) assign routes for special purposes when necessary; (3) secure military police or additional guides and markers to mark routes when necessary within the division service area; (4) announce limits of daylight traffic and use of lights; (5) designate forward and rear initial points where escorts are provided; (6) locate traffic control points and officers control stations; and (7) established priority of work on roads and bridges in the division service area.

8. **Trains.** *a.* The composition of the various trains of the division and their control will be as follows:

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(1) A "(Combat) Trains"—(Vehicles essential for close support in combat, to include light maintenance, ammunition, fuel and medical vehicles), will be under control of unit or combat command.

(2) B "(Field) Trains"—(Vehicles not immediately required for combat, to include company trains, kitchens and company equipment, heavy maintenance, unit supply and equipment vehicles), will normally be released to control of Combat Commands, but will be assembled under Division control when the tactical situation requires.

(3) C "(Division) Trains"—(Vehicles of the Division Service, less those attached to units or combat commands), will be under division control under command of the Train Commander.

*b. Trains Security.* (1) The trains Commander will be responsible for the defense and security of the Division Trains, and of B field trains when under Division control, and of all installations in the Division rear area.

(2) He will coordinate and protect movement of trains from the transfer points in the forward area to the rear *supply installations,* and on the return to the *Combat Command Transfer Points,* where the Commander takes over responsibility for final distribution of supplies.

(3) G-4 will notify the Trains Commander, Combat Commands, Division Reserve, and Division Trains of the *amounts* and *kind of supplies* ready, *where, when,* and *for whom,* for example:

"3000 rations at RH at 2130 for CCA"

A, B, C, Train vehicles under control of Trains Commander, will pick up their supplies at Division or Army supply point and return them to their units under respective column commanders.

*c. Service Troops and Trains.* G-4 will announce location of Division Trains to units, and movement of trains and attachments.

9. **Mail.** Mail will be collected by companies and sent back by unit or rear bound transportation to railhead, or ration distributing point and thence to the rear through the Railhead Officer. Mail will be sorted and sent forward to units with the ration distribution.

10. **Rear Echelon.** G-1 will establish the location of the rear boundary and rear echelon of headquarters, and will announce the hour of opening.

11. **Strength Reports.** Units will forward strength reports to G-1 by 0500 daily.

12. **Periodic Reports.** G-4 periodic reports will be compiled as of 0200 daily and forwarded to Division CP by 2200.

13. **Replacements.** G-1 will requisition suitable replacements from Army and will accomplish their distribution to units as the tactical situation permits.

14. **Stragglers.** G-1 will establish the location of the division straggler line, normally through the rear of the division rear echelon bivouac area, and will establish collecting points along this line using personnel of the military police platoon.

15. **Surplus Baggage.** G-4 will arrange for the disposition of surplus baggage such as extra barracks bags and extra clothing. (Normally this will be by unit dumps with small guard detachments).

16. **Laundry.** Such arrangements will be made for the collecting and return of laundry as the situation permits.

17. **Burial.** Each organization within the division will appoint a *Burial Officer.* He will be acquainted with AR 30-1805 and 30-1810. Method of burial will be announced in Division Order.

18. **Definitions.** *a. Meeting point.* A meeting point for trucks and guides within the area of a combat command or other major element, where trains are assembled prior to movement to a transfer point.

*b. Transfer Point.* A place where control of trains passes from Combat Commander to Trains Commander or vice versa. The Trains Commander is responsible for security of this point.

By command of Brigadier General Q:

X
COL, GSC,
C of S.

OFFICIAL:

Y
LT COL, AGD,
Adj Gen.

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# ANNEX 7

## AN ORDNANCE BATTALION SOP

This sample SOP is prepared for a T/O & E 9-76 headquarters broken down in this manner:

COMMANDING OFFICER
EXECUTIVE OFFICER

**Message Center**

| *Administration* | *Maintenance and Operations* | *Supply* | *Medical Detachment* |
|---|---|---|---|
| Adjutant ..1st Lt. | Maint Off ....Capt | Sup Off .....Capt | 1 Med Off |
| Sgt Maj ....M/Sgt | Oper Sgt ....T/Sgt | Asst Supply ..WO | 1 Dent Off |
| Pers Sgt ....T/Sgt | Asst Oper Sgt..T/4 | Sup Sgt ....T/Sgt | 8 EM |
| Asst Pers Sgt ..Sgt | Clerk .....T/5 | Unit Sup ....S/Sgt | |
| Clerk Gen ....T/4 | Basic .....Pvt | Clerk .....T/5 | |
| Clerk .....Pvt | | 2 Clerks .....Pvts | |
| Orderly .....Pvt | | Driver .....Pvt | |
| Driver .....Pvt | | | |
| *Message Center* | | | |
| Msg Cen Chief .Sgt | | | |
| Mail Clerk ....T/5 | | | |

Note: The T/O calls for five officers, one warrant officer and 19 enlisted men, all of whom are accounted for in the chart. Only variation from the T/O is the driver in the Administration Section who is listed as a basic in the T/O.

### SECTION I

**General.** a. *Purpose.* The following *Standing Operating Procedure* covers features which normally can be standardized and are prescribed in order to avoid confusion and error.

### SECTION II

### REPORTS

1. Units will report location daily as of 0800 to Bn Hq by 1300.

### SECTION III

### TACTICAL MOTOR MOVEMENTS

1. **Order of March.** When the Bn moves as a unit it will normally march as one serial divided into march units each comprising one Company.

2. **Intervals.** *a.* The Bn will march in open column except when passing through localities designated as traffic congestion center.

*b.* Open column interval between vehicles in march units will be three times speedometer reading in yards. Interval between march units will be 10 times speed in yards and not less than 200 yards.

*c.* Closed column interval between vehicles will be twice speedometer reading in yards. Interval between march units will be five times speed in yards and not less than 100 yards.

*d.* When passing through towns columns will close up the distance between vehicles to 15 or 20 yards unless the situation requires otherwise. Guards will be utilized on all streets and intersections and changes of routes. Speeds will be reduced to not more than 20 MPH.

3. **Initial Point.** The IP specified in march orders will normally be at a sufficient distance from bivouac or assembly area so that all vehicles will be in column with proper interval when leading vehicle in serial reaches IP.

4. **Reconnaissance.** *a.* An advance detail consisting of two officers in the Bn Hq and one officer and one noncommissioned officer from each of the units



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concerned will precede the motor movement to the expected location of bivouac for the purpose of choosing the route and location of each unit when going into bivouac.

*b.* In a short movement the detail will allow sufficient time for return to unit to supervise make-up of march order. An officer of the detail should accompany guards. If time allowance for movement does not permit the return of the detail to the unit, the march orders will be written and the reconnaissance detail plus sufficient messengers will proceed far enough in advance of the main body to permit any alteration of the route of march of the main body should an emergency present itself.

*c.* In a long movement requiring several days, the advance detail plus sufficient messengers will precede the main body far enough in advance to permit it to alter the route of march of the main body should an emergency present itself and to select a suitable bivouac at any halting point or at the destination, before the main body arrives.

5. **Rate of March.** Column control vehicle will normally average 28 MPH. The maximum speed limit is 35 MPH and will not be exceeded except in an emergency.

6. **Halts.** Column will be halted for a 10 minute interval at 10 minutes before the even hour. Security guards will be posted. Drivers and assistant drivers will inspect vehicles as prescribed in TM 21-300. De-trucked personnel will remain on the right side of the column. Vehicles will be removed to the right of the road where practicable. Road guards will be placed at points beyond the column extremities and at the end of each march unit.

7. **Air and Ground Protection.** All vehicular weapons will be mounted. Those in front half of a march unit will point to the front; those in rear half to the rear. Two riflemen per vehicle will be posted and constantly alerted for defense measures during movement. At the halt, these riflemen will be deployed to front and rear and on the flank of march unit. In case of an attack all vehicles will halt in place. Personnel will dismount and utilize small arms fire from prone position, obtaining cover in gullies, ditches, or behind trees if such cover can be reached in less than 30 seconds. Attacking planes will not be fired upon during hours of darkness except upon order of a commissioned officer. A signal of three rifle shots or three blasts on whistle or horn will indicate attack. One long blast will indicate all clear.

8. **Gas Protection.** During movement all personnel will be constantly alert to detect the presence of gas, especially entering a previously gassed area. In the event gas is encountered, the lead vehicles will move to the right out of column and halt. Masked personnel will dismount and proceed to the rear of column on foot, warning personnel in all vehicles, which will continue in movement.

9. **Night Movement.** Motor movements during hours of darkness, when blackout conditions prevail, will be with blackout driving lights unless otherwise ordered and distances between vehicles will be reduced so that blackout lights are discernible. Should headlights be used, distances will be as prescribed in par. 2, above.

10. **Guides.** Sufficient guides will be carried by the advance or reconnaissance party to be posted at railroad crossings, intersections, etc., and will be picked up by the trail vehicle, normally the last in the serial.

11. **Vehicle Identification.** Each vehicle will be marked with chalk, front and rear, to indicate the numerical position within the march unit.

12. **Control Officer.** The control officer will normally be the Bn Executive in the lead vehicle of serial. He will establish rate of march, select positions for temporary halts, and enforce march discipline.

13. **Trail Officer.** The trail officer for each march unit will be the unit motor officer who will ride in the automotive repair vehicle in rear of his march unit. The Bn trail officer will be the Bn Supply Officer in the serial trail vehicle.

14. **Loading.** Personnel will carry full field equipment plus authorized baggage on the vehicle to which assigned. T/E and T.BA equipment, individual and organizational, will be loaded. Basic load of spare parts and supplies and Ordnance materiel in shops for repair (insofar as transportation is available) will be loaded. Loading arrangements and order of march of vehicles within companies will be the responsibility of unit commander.

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## SECTION IV

## ORGANIZATION OF FIELD SHOP AND BIVOUAC AREA

1. **Reconnaissance.** Selection of a general Bn area will be made by the Bn Commander or a delegated staff officer. The reconnaissance officer for the Bn will reconnoiter the route and area. Advantage of all time available will be taken to make as deliberate a reconnaissance as the situation will permit.

2. **Defense.** a. When a company commander is assigned an area for his company a definite defense sector in the Bn area will also be assigned to him. He will be responsible for the defense of this sector against ground attack and for protection against air and gas attack within his area. He will immediately establish his own observation posts, outposts, and interior guard upon occupying an area.

b. In case of an attack or alert each Company Commander will dispatch his selected Bn reserve force to Bn Hq, deploying his forces in accordance with his plan for the defense of his sector and immediately report the situation to the Bn CO by phone or runner. All changes or new developments in the situation must be reported immediately. He should maintain contact with his phone by means of runners to make reports or to receive instructions.

c. All personnel will constantly keep vigilance to prevent thefts of equipment by civilian or military personnel.

3. **Details.** a. Four men from each company will report to the Bn Sgt Major as soon as the Bn occupies and begins to establish a field position. The Bn CO will direct additional detail to be supplied when required. These men will act in the capacities and wear the equipment listed: one man as signal or switchboard operator (full field equipment); one man as guard for CP (full field equipment); two men as messengers (one with full field equipment, one to return on completion of phone communication).

b. Each company will organize a detail of 10 riflemen, one auto-rifleman and one NCO to be available as a Bn defense force reserve. The defense force detail will report immediately to the Bn Executive at Bn Hq in case of an alert, attack or on call.

4. **Field Shops.** Company field shops will be organized as directed by the company commanders. A turn-around road through the shop area will be established and sections located convenient to this road. Shop offices will be located near the main entrance to the shop areas. One-way traffic on the turn-around will be enforced. Vehicles not necessary to the operation of a section will be parked in the company motor pool and properly dispersed.

5. **Bivouac.** Bivouac areas will be located and organized as directed by company commanders. Whether section or company bivouac is established, provision must be made to exclude vehicular traffic therefrom. Bivouac areas and kitchen must be sufficiently removed from shop activities to prevent interference with maintenance work.

6. **Signal Communication.** Telephone communication between Bn Hq and the companies will be installed immediately upon occupation of a Bn area. A signal detail from Bn Hq will install and operate the switchboard, will run wire lines from the switchboard to each company command post, and maintain the signal system. Telephones used by the companies will remain in their possession when stations are closed. A switchboard operator will be on duty at all times and a CQ or clerk will be on duty at the company phone at all times.

7. **Concealment.** a. Blackout conditions prohibit the use of exposed, unshielded lights. Blackout vehicle lights, lights in technical vehicles or tents with blackout provisions, and flashlights properly shielded will be permitted. Flashlight lens must be covered with paper or colored cellophane to restrict light to a dull glow.

b. Camouflage of vehicles, tents, materiel, and all installations will be habitual upon occupation of an area. Maximum advantage will be taken of existing overhead cover. The cutting of brush, small tree limbs, etc., for camouflage purposes is permitted where local ground rules of maneuver area do not prohibit such practice. Vehicle windshields and other reflecting surfaces will take precedence in camouflage operations. White objects such as mess kits, undershirts, paper, maps, etc., will not be left exposed to aerial observation.

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8. **Hq & Hq Detachment.** The field organization of Bn Hq and its bivouac will be under the supervision of the Adjutant. NCO chiefs of sections will supervise the setting up of their section offices, tentage, etc. A detail of additional men from the companies will assist in the initial organization of Bn Hq and also will assist in closing station. Hq officers and enlisted personnel will be rationed with a nearby company designated in each situation. A designated staff duty officer will remain on duty at Bn Hq during daytime and will sleep in Bn Hq at night. during his tour of duty. A Bn Officer of the Day will not be required in the field. One interior guard post will be established in the Bn Hq area.

9. **Traffic Control.** a. Vehicles not essential to the operation of a section or office will be parked in a specified motor pool, dispersed to maximum intervals available. One-way traffic will be enforced within the Bn area if practicable. Vehicles will pull off the roads when halted and will be sent to a motor pool if the halt is other than temporary. No one or no vehicle will leave the Bn area without authorization of the Bn Executive or Bn Maintenance Officer.

b. Vehicle congestion around Bn Hq will be prevented by requiring visiting vehicles, as well as organization vehicles, to proceed to a designated motor pool.

c. Vehicle congestion around command posts of companies or shop offices will be prevented by requiring vehicles to proceed to a company motor pool. Enforcement of one-way regulations within company areas will be accomplished by means of guides, guards, or arrow markers appropriately placed.

## SECTION V

## MEDICAL ADMINISTRATION

1. **Medical.** a. The Bn Surgeon is responsible for medical care and evacuation. supervision of personal hygiene, and field sanitation of all troops assigned or attached to Bn. Bn Aid Station will be promptly established upon occupation of the bivouac area.

b. During motor movement one medical soldier with first aid equipment will ride in last vehicle of each march unit. He will render first aid to all casualties and see that they are evacuated to the medical unit which will be located at the rear of the march serial. All cases reported to or observed by, the medical soldier will be treated during a halt, if possible, otherwise the Bn Surgeon will be contacted without delay.

c. During field shop operations, all accidents regardless of whether minor or severe, will be reported immediately to Bn Surgeon.

2. **Dental.** The Dental Officer will be responsible for the dental health of all Bn personnel. He will make a dental survey of all personnel at least twice each year. The Dental Officer will also perform emergency first aid in cases of maxillary or mandibular fractures, wounds or hemorrhages. In addition he will assist in administering general first aid and in maintaining field sanitation and personal hygiene under the supervision of the Bn Surgeon.

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## APPENDIX 1

# TO STANDING OPERATING PROCEDURE

## ADMINISTRATION

1. **Preparation for Movement.** a. Sufficient office supplies, including necessary blank forms, for a period of 30 days will be prepared for shipment.

b. Service records, soldier's qualification cards, morning reports and sick book will be placed in one container and will be in the custody of the Personnel Sergeant Major during the movement.

c. File records and publications will be placed in wooden boxes suitable for protection during transit and use in the field.

d. Secret and confidential documents together with other articles which cannot be replaced without considerable difficulty will be transported locked in a strong metal box. Keys will be in custody of CO and Adjutant.

2. **Selection and Arrangement of Bivouac Area.** a. An area will be selected which is situated on high ground and provides good overhead cover so far as the terrain permits.

b. The area will be of sufficient size, if possible, to accommodate the personnel of Bn Hq and the personnel sections of the companies attached.

c. The area will be centrally located with reference to attached companies. If possible, the area selected will be convenient to the main traffic artery of the vicinity.

3. **Operation in the Field.** a. Alert instructions will be posted on Bn Hq bulletin boards and also on bulletin boards of attached companies.

b. During field operations correspondence will be reduced to the absolute minimum. All matters which can be handled by informal or telephone communication will be so handled. Only essential records will be made and kept. Field messages will be utilized to the fullest extent.

c. In the theater of operations the submission of ration returns, replacement requisitions and casualty reports will take precedence over all administrative functions.

d. Sergeant Major will establish and maintain unit lot.

4. **Operation of Message Center.** a. Message Center will be located within Bn Hq area.

b. Operations map will be made and displayed in Message Center.

c. Appropriate mail schedules will be arranged upon arrival at bivouac.

d. With the exception of wire communications, all messages will clear through Message Center.

e. Direct telephone communication will be established between Bn Hq and attached companies.

5. **Local Security.** a. On arrival in bivouac, slit trenches will be dug.

b. System of paths will be established to connect installations within the area.

c. Slit trenches will not be dug in established paths in area.

d. The Adjutant is responsible for the local defense plan in Bn Hq bivouac area. He will conduct at least once daily such drills as may be necessary to acquaint each man with his place in defense team and his duties in event of attack or raid.

6. **Camouflage Discipline.** a. The bivouac area will be altered as little as possible to prevent observation from air.

b. No new roads will be established.

c. All vehicles will be placed under overhead cover and will be headed in the general direction of the exit from the area.

d. No refuse will be strewn about bivouac area.

e. All personnel will stay within established paths.

f. Bn Hq tents will be camouflaged to conform with the surrounding terrain.



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## APPENDIX 2

# TO STANDING OPERATING PROCEDURE

## SUPPLY

The Battalion Supply Section is primarily responsible to the Bn CO for maintenance of a continuous flow of supplies of all types to units of the organization. The Supply Section is responsible for the supervision of property and shop expenditure records maintained by the companies and for supervision of the maintenance of proper stock levels and allowances of equipment. It is its duty to provide information, contact, and control between supply agencies and organizational units.

## PART I

## HEADQUARTERS SUPPLY SECTION

1. **Parts Control.** a. The Hq Section will obtain such reports and information from the companies as is necessary to keep itself continually informed as to the status of the level of supply in each company. This will permit the section to compute requirements of parts necessary to accomplish the work load assigned and to keep the Maintenance Section informed of the ability of the companies to complete any proposed operation. Hq Section will make studies of turnover of parts; rates of expenditure; prepare estimates of future requirements; and maintain mortality studies.

b. Hq Section will obtain data on expenditure of parts and balances on hand. Upon information obtained from Bn Maintenance Section as to proposed work loads, companies will be informed of anticipated adjustment of spare parts levels that will be required to complete the assigned work.

c. Liaison will be maintained with higher headquarters to determine impending parts shortages and necessary revision of parts load. The Maintenance Section will be informed of such conditions so that such corrections as can be effected through shop procedure will be adopted.

d. Hq Section will call for such reports of items shown on Stock Records that have reached the minimum level after requisitions have been unfilled. Steps will be determined to avert complete shortage of such items.

e. Stock levels will be governed by the following factors:

(1) Types and quantities of Ordnance equipment to be serviced.

(2) Type of terrain and climatic conditions.

(3) Type of action contemplated.

(4) Continuity of supply from depots or issuing agency and anticipated time lag of resupply.

(5) Priority of service to be given unit, and specific equipment in hands of troops.

f. Exceptional demands that can be supplied by local purchase will be arranged for through contact with Hq Section.

g. The Bn Supply Officer will continually contact each company in order to determine that the company supply officers are anticipating and providing for future demands.

2. **Personnel.** a. Any additional personnel required for operation of Hq Section due to employment of prescribed procedures, such as consolidation of requisitions. will be obtained from attached companies.

## PART II

## COMPANY SUPPLY

1. Each company will maintain a stock record system showing the amount of items used; dues in and dues out; maximum, minimum, and re-order point; work order number; balance and interchangeability.

2. Each company supply officer will continually check his records so as to guar-



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antee a level of supply sufficient to meet expected demands. He will make a study of rates of expenditure, turnover, and future requirements. Any difficulty above the usual encountered in obtaining supplies or maintaining an adequate level of any item will be reported to the Bn S-4.

3. Supply will be by direct exchange through maintenance channels. Using units will exchange unserviceable parts for serviceable parts from maintenance company stock. Maintenance companies will draw upon their own spare parts, and replacements will draw direct from the Depot Company. A report will be made three times daily to Bn Hq of all items which have been requisitioned and not obtained. Bn Supply will continually check these items and contact the depot or higher echelons to assist in obtaining them or will indicate the means by which such parts can be obtained or substitutions made.

4. An expenditure report will be forwarded to Bn Hq weekly showing by type, the number of vehicles serviced or repaired; the parts used; and the balance of such parts in company stock.

5. Salvaged equipment will be completely stripped and serviceable items returned to stock if within the maximum allowed. If above maximum, material will be turned in to depot company through next higher echelon of Bn.

6. Stock reaching the given minimum due to zoning of requisitions will be immediately reported to Bn S-4.

7. All items will be requisitioned at the re-order point and not at the stated minimum.

8. If no turnover of a certain item occurs in 10 days, the stated minimum and maximum will be reduced and any excess created thereby will be returned to the depot company. Report of such condition and action will be made to Bn S-4.

9. When the total amount of two or more interchangeable items on hand is equal to or less than the total re-order figure, requisition will be made to bring the level up to the maximum.

10. When one company has parts in stock which another company needs for immediate use and cannot obtain through the usual channels, the part will be transferred without delay upon approval of the Bn S-4.

11. Fullest use will be made of salvaged material and cannibalization when authorized.

12. Shop Officers will insist that using units turn in items for exchange complete according to current directives.

## PART III

## SUPPLIES

1. **Class I Supplies.** Class I supplies will be drawn from the railhead each evening for the following day. Each company will provide transportation and a detail of three men including one NCO. In case a separate vehicle is not needed for each company, the companies may alternate in furnishing transportation. The breaking down of these supplies will be made at the railhead by a NCO from the Bn Supply Section. In the event that the companies are located far apart, the ration detail will be handled independently by each company.

2. **Class III Supplies.** Companies will report to Bn Hq daily their requirements of Class III supplies and this information will be consolidated and transmitted to next echelon. Supplies will be issued from depots or supply points as designated.

3. **Class V Supplies.** Requests for Class V supplies will be made upon designated Hq and will be drawn from the appropriate ammunition supply point. Credits for these supplies will be made by higher headquarters. Requests for credits will be initiated by the company if necessary. Report of all Class V supplies drawn or expended will be made to the Bn Supply Section.

4. **Class II and IV Supplies.** Companies will requisition these supplies and draw direct from supply points designated by higher headquarters. Bn Supply Section will continually contact the companies to determine condition and completeness of equipment, and to assist in obtaining those items which the unit may have difficulty in obtaining. Bn Hq will handle unit supply only insofar as is necessary to assist in correcting shortages or emergencies.

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## PART IV

## TRANSPORTATION

1. Transportation will be co-ordinated, where possible, through Bn S-4. Companies requiring additional vehicles for a specific mission will make its demand known to the Bn S-4 who will allocate any available vehicles from other units.

2. The Bn S-4 will supervise the maintenance of all organization vehicles through the company motor officers.

a. Direct supervision of driver maintenance will be made by a company officer appointed by the Company Commander as Motor Officer.

b. Preventive maintenance records, trip tickets and other vehicle records, will be kept as prescribed.

c. Motor stables will be held in accordance with current directives.

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## APPENDIX 3

# TO STANDING OPERATING PROCEDURE

### MAINTENANCE

The Maintenance Section is responsible to the Bn CO for co-ordination and supervision of maintenance activities of the Bn, the mission of which is to provide 3rd and 4th echelon Ordnance service and to effect replacement of unserviceable 2nd echelon parts held by using troops. This function will be attempted only insofar as is allowed by time, tools, ability, availability of parts, and capacity of attached companies.

### PART I

### ADMINISTRATION

1. **Work Allocation.** a. If Bn Hq and attached units are located in position favorable to Bn control, the flow of work will be through a Bn Control Point wherein all work orders will be initiated and the maintenance load will be assigned and adjusted by the Maintenance Officer.

b. If the Bn is segregated, the maintenance of equipment by the Bn will be accomplished by the blanket allocation system insofar as is possible with efficient and effective service to using troops. Each Maintenance Company will be placed in direct support of a proportionate share of the total maintenance load, the type and size of the share depending upon the capacity and capabilities of the company. The Bn Maintenance Officer will make such adjustments in company "assigned work load" as is found necessary from time to time.

2. **Planning.** The Maintenance Officer will:

a. Make a study of the types and quantity of equipment which is to be maintained. Such study is to be based on appropriate Ordnance Equipment Charts and/or T/BA and T/O & E. Arrangements will be made for the procurement or manufacture of any special tools found to be necessary to maintenance of such equipment.

b. Estimate future loads by analysis of operations, information and equipment. Make necessary plans and preparations and transmit estimates to supply section for ordering supplies.

c. Reconnoiter proposed future shop locations as far in advance of anticipated moves as possible, locating shop sites in the most suitable position for efficient and expeditious operations with terrain suitable to necessary security precautions.

3. **Operations.** The Maintenance Section will:

a. Determine the time factor and issue plans and instructions governing evacuation to higher echelons and replacement of items from depot pools.

b. Determine by liaison with supported units which items are critical and indicate priorities of work and make necessary changes in work schedules of shops.

c. Maintain current status of maintenance situation through information from contact parties and liaison technicians.

d. Determine through liaison with supply which items will be evacuated and which items will be repaired at site on the basis of time and parts available and time required to re-supply. The Maintenance Section will issue directives to Maintenance Companies in this regard.

e. Spot check quality of work performed by companies and determine production efficiency, taking action to improve it if necessary.

f. Report unusual or excessive breakdown of equipment to higher headquarters for action.

g. Cause pre-issue instructions (OFSB 2-17) to be made on all equipment processed by shops.

h. Prescribe type and manner of reports to be submitted by companies to Bn Hq.

i. Recommend to higher headquarters changes in location of units to suit the tactical situation.

j. Supervise application of latest directives and instructions from higher head-



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quarters including periodic checks of equipment in the hands of using troops to determine the status of FSMWO's.

4. **Records & Publications.** The Maintenance Section will keep on hand the following records and publications:

a. Material on hand for repair and all known to be coming.

b. Current data as to road conditions, available communications, movement restrictions, etc. (Some commanders may choose to delegate this to Bn S-2 and S-3).

c. Records of Ordnance equipment served.

d. All publications necessary for performing complete field maintenance will be procured and carefully filed and referenced. Such instructions as are applicable will promptly be disseminated among the companies and followed up to insure compliance.

e. Basic data required for shop planning, space and facilities needed, time required for various repairs, work capacities of attached companies, available equipment, etc.

f. Files on jobs in shop, jobs awaiting shop, jobs awaiting parts, and downtime.

5. **Ordnance Inspections.** a. (Arrangements prior to inspections.) The authority to inspect will be used solely for the purpose of giving more complete and efficient service to the using units. It will always be arranged through command channels. Inspecting parties will not inspect units of any command without previously reporting to all commanders concerned, displaying authority and asking co-operation.

b. (Formal inspections) Prior and subsequent to combat, thorough inspections will be made of Ordnance equipment in the hands of supported troops to determine supplies and repairs needed. Repairs as far as can be made at the unit bivouac will be effected at the time of inspection. Unserviceable equipment which cannot be repaired by the inspecting party will be withdrawn and either replaced immediately or arrangements will be made for its replacement. Formal reports will be completed and turned over to unit commanders, listing shortages and repair work to be performed by using units.

c. (In combat) During Combat, inspections by Ordnance personnel will be a continuing operation. Every effort will be made to determine before the actual need arises, the repairs and supplies which the using units will require. The supplies and repair facilities will be pushed forward with the inspecting parties to enable the prompt filling of needs when they have been determined.

6. **Miscellaneous.** In addition to the operations outlined above, the Maintenance Section will perform the following functions:

a. Collect information concerning Ordnance material used by both enemy and friendly troops. This will include particularly any new equipment or advanced modification of older material.

b. Keep diaries or appropriate records of important events affecting Ordnance items. This will include statistical data, operations and methods of procedure.

c. Prepare proper disposition of information essential to the maintenance of material.

d. Prepare plans to guard against Ordnance stores falling into the hands of the enemy. Plans will include evacuation or destruction depending on the situation. Actual destruction will not be ordered unless it is impossible to communicate with the Bn. CO.

e. Assist in the investigation of accidents due to malfunction or improper handling of equipment. (The CO of any unit in which an accident occurs involving malfunction of Ordnance material will be instructed to report the facts immediately to the Bn CO.)

f. Check companies to promote efficient shop operations and insure compliance with pertinent directives. Such inspections will be made with the objective in mind of eliminating unnecessary or inefficient paper work.

g. Employ such supervision and render such assistance as the Bn CO may direct.

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## PART II

## GENERAL

1. **Sources of Work.** Work will reach the attached Maintenance Companies in one of the following manners:

a. Direct from the using unit.

b. Through evacuation from 3rd echelon companies.

c. Recovery of abandoned or immobilized material in the advance section.

2. **Patrol Parties.** Ordnance Road Patrols will be organized from the Maintenance Companies for the purpose of patrolling points along the axis of communication in search of material in need of Ordnance service. These units will be equipped with hand tools and a small stock of fast-moving parts and such items of testing and trouble shooting equipment as is found necessary. If material repair is beyond the scope of the road patrol, the nearest Maintenance Company will be contacted to effect recovery.

3. **Inspections & Scheduling Sections.** a. Upon receipt, Inspection Section will determine and classify exact condition of major units, assemblies and sub-assemblies. Efforts will be made to hold degree of disassembly and quantity of new parts used to a minimum.

(1) When items have been classified as reparable by Inspection Section parts, assemblies or sub-assemblies may only be removed on approval of Bn Maintenance Officer for the immediate repair of priority deadlined items. Assemblies or sub-assemblies removed will be replaced with like unserviceable items.

b. Scheduling will be based on priorities passed to companies from Bn Maintenance Section and the availability of parts.

4. **Extent of Service.** All major items processed by Maintenance Companies will be completely serviced including tools and equipment.

5. **Cannibalization.** a. No cannibalization will be effected unless authorized by Bn Maintenance Officer. When so authorized, cannibalization will be effected by 4th echelon shops.

b. Items designated to be cannibalized will be completely stripped and parts disposition will be as follows:

(1) Serviceable parts will be processed for storage and returned to stock insofar as is allowable by authorized stock level. Excess stock will go to intermediate depot through next higher echelon of Bn.

(2) Unserviceable but reparable parts will be repaired if possible and processed as prescribed in preceding paragraph or evacuated to next higher echelon.

(3) All scrap or irreparable material will be turned in to QM salvage.

c. Full report on all major items cannibalized will be submitted to Bn Hq.

6. **Exchange.** All assemblies and sub-assemblies received on an exchange basis will be repaired within the capabilities of the unit or evacuated to next higher echelon.

7. **Details.** The following details will be organized and supervised within attached companies:

a. Contact parties equipped with 2nd echelon parts kits where possible for the purpose of contacting using units, making inspections and "on the spot" second echelon repairs of equipment; also to act as liaison between Maintenance Companies and using units.

b. Liaison technicians to be stationed with using troops for the purpose of furthering preventive maintenance within using units and effecting contact between using troops and Maintenance Companies.

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# APPENDIX 4

# TO STANDING OPERATING PROCEDURE

## PART I

## GENERAL

1. **Water Supply.** a. No water will be used in the field unless obtained at the water distribution point or approved after sterlization by the Bn Surgeon.

b. When streams have been used for bathing, laundering, or washing equipment, the areas will be so marked.

2. **Food and Messes.** a. Only inspected meat obtained through the QM will be used. Meat will not be kept in refrigerators for longer than 48 hours without being cooked.

b. Only beverages from approved sources will be used.

c. All food will be protected from flies, dirt, and roaches while in storage, transit, and during preparation.

d. All kitchen utensils and mess kits will be washed in boiling soapy water and rinsed in clear boiling water.

e. Dish towels will not be used at any time.

f. The areas around the kitchen will be kept clean at all times. Facilities will be provided for the cooks and KP's to keep their hands clean.

g. All iced drinks will be served from covered containers with faucets.

h. No common drinking cups will be used.

3. **Disposal of Waste.** a. Trench latrines should be dug 2 ft. deep, 1 ft. wide and to accommodate 10% of the command with 2 ft. per man. A shovel, lantern, and toilet tissue will be at latrine at all times.

b. Latrine screens will be used.

c. At noon halts, shallow trenches will be dug, closed and marked before the march resumes.

d. All latrines will be sprayed once daily with crude oil.

e. Garbage cans will be kept clean and covered.

f. Improvised incinerators will be constructed and all garbage burned. All unburnable material will be buried.

g. All garbage pits will be closed when filled within 3 ft. of top.

h. Liquid kitchen waste will be disposed of in a soakage pit.

4. **Venereal Disease.** Prophylactic station will be set up at Bn Aid Station.

5. **Insect Control.** a. Eliminate breeding places of flies.

b. Men in bivouac area will sleep under mosquito bars and, when operating in a mospuito-infested area, will wear headnets.

6. **Snake Bites.** Snake bites will be treated at the Bn Aid Station.

7. **Personal Hygiene.** a. All troops will bathe at least twice a week, provided water is available.

b. All underwear should be changed at least twice a week.

c. With a limited water supply, every soldier should wash his arm pits, feet and crotch daily.

8. **Precautions.** a. Swimming will not be permitted in places which have not been approved for that use.

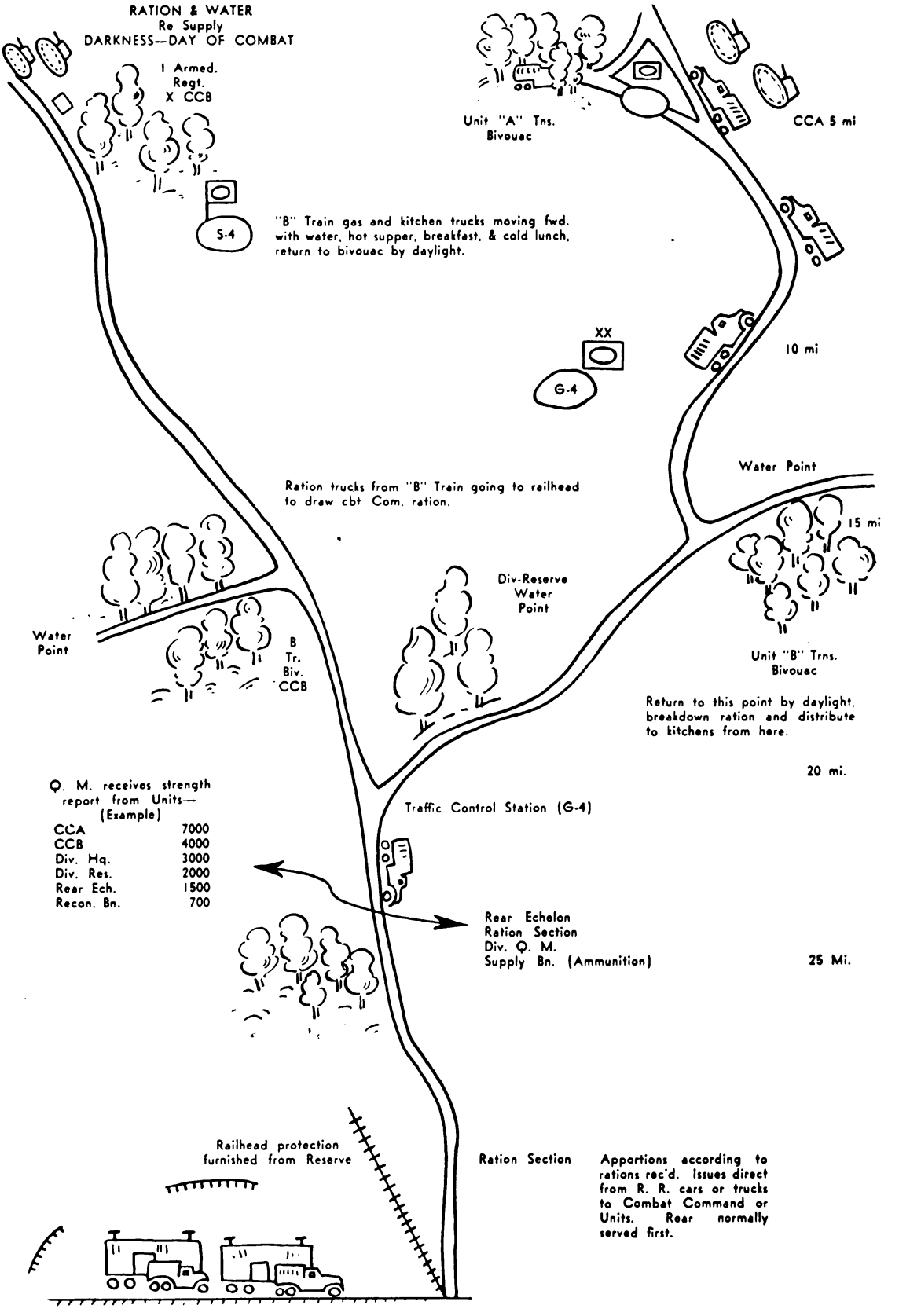
b. On prolonged marches or when exposed to the sun for long periods, sodium chloride tablets should be used. (South West Pacific Area requires tablets be dissolved in canteen before using.)

c. In electrical storms, keep away from trees and metal objects, wire fences, etc.

d. All probable fractures are to be examined by a company first aid man before the patient is moved.



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## APPENDIX 4

# AN ENGINEER SPECIAL BRIGADE SOP (ORD)

## SECTION I

## GENERAL

**Mission:** Ordnance Troops attached to the Engineer Special Brigades are responsible for:

a. Third echelon maintenance of organic weapons and Ordnance vehicles of units of the Engineer Special Brigade.

b. Beach recovery of drowned-out vehicles and operation of emergency motor maintenance service on the beach.

c. Operation of temporary initial Ammunition Dumps on the beach for the collection, reception, sorting, and making issues of ammunition.

d. Establishment of consolidated Ammunition Dumps inshore as soon as practicable.

e. Identification and security of Ordnance Class II supplies arriving over the beach.

f. Bomb reconnaissance and disposal of UXE's in the beach maintenance area.

**Organizations.** a. Troops:

Headquarters and Headquarters Detachment Ordnance Battalion, T/O & E 9-76, 31 March 1943.

Ordnance Company, Medium Automotive Maintenance (reinforced), T/O & E 9-127, 24 March 1943. This unit is reinforced as indicated in Appendix No. 1. (Omitted here for brevity.)

Ordnance Ammunition Company T/O & E 9-17, 1 April 1942.

Ordnance Bomb Disposal Squad, Sep. T/O & E 9-179, 20 November 1942.

b. An officer from an Army Ammunition Battalion is attached to the Engineer Special Brigade, approximately D-75. This officer is an advance detachment of an Army Ammunition Battalion, furnished to serve as Ammunition Officer on the Brigade Ordnance Officer's staff. When Army takes over control of the Ammunition Dumps, he reverts to his own Battalion.

c. The Commanding Officer of the Ordnance Battalion has a dual function as Commanding Officer of the Ordnance Troops and as Brigade Ordnance Officer of the Engineer Special Brigade.

**Operations.** a. The Brigade Ordnance Officer is the munitions and maintenance officer of the Brigade, and has all the duties of a staff officer. He must carry out his functions in pursuance of the plans of the Brigade Commander. He should maintain close liaison with the Army Ordnance Officer. He is responsible for planning the Ordnance maintenance and supply operations within the Brigade. He puts these plans into operation when approved. He commands Ordnance Troops attached to the Brigade and has technical supervision over maintenance in all units of the Brigade. His normal post is at the Brigade Command Post.

b. The Headquarters and Headquarters Detachment. Ordnance Battalion, furnishes the necessary personnel to man and operate the Brigade Ordnance Office as well as the Battalion Command Post. The Brigade Ordnance Office will be sub-divided functionally into three coordinate elements: the headquarters office of the Brigade Ordnance Office, the Brigade Ammunition Office, and the Brigade Maintenance and Supply Office.

(1) The headquarters office of the Brigade Ordnance Office accomplishes the details and the duties associated with the planning for the coordination of the Brigade Ordnance Service. This office constitutes the immediate control agency of the Brigade Ordnance Officer in the execution of his functions. It is located at the Brigade Command Post. It may consist of the following personnel from the Headquarters and Headquarters Detachment, Ordnance Battalion:

1—Lieutenant Colonel ..Battalion Commander and Brigade Ordnance Officer
1—Captain .....Assistant Brigade Ordnance Officer
1—Technical Sergeant ..Operations (814)
1—Technician 4th Grade Clerk, typist (405)



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(2) The Brigade Ammunition Office performs the detailed duties associated with the ammunition handling responsibility of the Brigade Ordnance Officer. The responsibility involves insuring the continuity of ammunition supply to combat troops already across the beach, and the handling of ammunition being received on the beach. The Brigade Ammunition Office is located where it can best discharge its supervisory duties and may consist of the following personnel:

1—Major or Captain ...Detached Service from an Army Ammunition Battalion
1—Lieutenant .....Special Duty from an Ammunition Company
1—Sergeant .....Clerk, stock (323). Special Duty from an Ammunition Company
1—Technician 5th Grade Clerk, general (055). Special Duty from an Ammunition Company

(3) The Brigade Maintenance and Supply Office will handle all the details associated with the maintenance of the Ordnance materiel of the Brigade and the technical Ordnance supply of units of the Brigade as well as Ordnance units attached to the Brigade. It is physically located at the Battalion Command Post and may consist of the following personnel from the Headquarters and Headquarters Detachment, Ordnance Battalion:

1—Major .....Battalion Executive Officer and Brigade Maintenance Officer
1—Capt. or 1st Lt. .....Brigade Ordnance Supply Officer
1—Technical Sergeant ..Supply (821)
1—Technician 5th Gr. ..Clerk, requisition (405)
1—Technician 5th Gr. ..Clerk, typist (405)

(4) The remaining personnel of the Headquarters and Headquarters Detachment, Ordnance Battalion, are charged with the administration and supply (other than technical supply) of the Ordnance units attached to the Brigade.

(5) The Commanding Officer of the Bomb Disposal Squad has a dual function of Brigade Bomb Disposal Officer as well as detachment commander.

## SECTION II

## MAINTENANCE AND RECOVERY

**Maintenance.** a. The Ordnance Company, Medium Automotive Maintenance, is capable of performing third echelon maintenance for the weapons of the Brigade and approximately 1200 Ordnance vehicles under normal conditions. This company is reinforced as indicated in Appendix No. 1, to more completely insure performance of its mission and to permit it to operate on three beaches. Personnel of this company are especially trained in the maintenance of DUKW's and LVT and the operation and maintenance of TD-15 tractors.

b. During the period H/2 to H/4 the Ordnance Company Medium Automotive Maintenance, sends personnel ashore to establish collecting points for rendering emergency motor maintenance service to assist vehicles and equipment damaged or stranded during landing, and dewaterproofing point. Dewaterproofing remains a driver's responsibility, but personnel of the beach teams must be thoroughly versed in waterproofing technique and after effects of salt water imersion. Dewaterproofing areas will be established as early as possible and initial stages of phase four accomplished therein. Waterproofing materiel will be conserved to the maximum practicable extent and collected in the dewaterproofing area for reshipment and reuse. These teams should carry a supply of parts common, small fast-moving items, and standard hardware. Non-repairable vehicles are treated to prevent undue deterioration and remain in the selecting points until evacuation is possible. Each of these teams may consist of the following:

1—Lieutenant .....Shop Platoon Leader Diagnoses trouble
1—Technical Sergeant ..Foremen, Auto Repair Shop (337) Supervises repair work and assists in diagnosis
2—Technician 4th Grade Clerk, parts (345)
1—Technician 3rd Grade Mechanic, automobile (014)
1—Technician 4th Grade Mechanic, automobile (014)
2—Technician 5th Grade Mechanic, ignition and carburetor (414)
1—Technician 4th Grade Repairman, small arms (511)
2—Technician 5th Grade Repairman, small arms (511)

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2—Privates .....Repairman, small arms (511)
2—Privates .....Repairman, tire (240)
2—Technician 5th Grade Welder, general (256)
2—Privates .....Basic (521)
Truck, 2½-ton, spare parts, w/winch .....1
Truck, ¾-ton WC, w/winch .....1

c. At approximately H/4 the Td-15 tractors will be landed on the beach for use by the Ordnance Company in beach recovery operations. It is suggested that a minimum of our mechanics be specially trained in rigging and accompany these vehicles in addition to the regularly assigned drivers from the Ordnance Company.

d. The balance of the Company will be utilized to reinforce the teams on the various beaches to assure continuous 24 hour operation, and with the Central Repair Shop Platoon to operate the Company repair shop. The continuous performance of the Ordnance vehicles of the Brigade becomes the prime mission of this company. Without a high standard of maintenance in this respect the Brigade will not be able to handle the volume of supplies it must take across the beach. Provision must be made for training sufficient essential specialists to assure 24 hour operation of the beach teams, maintenance shops and supply service. It is suggested that each maintenance team have a ¾-ton Weapons Carrier with one acetylene welding set, one portable air compresser, one electric and carburetor mechanics set, and meter vehicle mechanic sets. In addition, each team should carry MVM Sets on the TD-17's of each beach, thus having tools available for immediate use. Each team may have mounted on a DUKW a hot-shot battery to start drowned-out motors and some emergency repair equipment. Mechanics should carry tools and small fast moving parts in a canvas bag suspended from the shoulder and ready for immediate use.

**Bomb Disposal.** The Bomb Disposal Squad is responsible for handling unexploded bombs and shells above the high water mark, including docks, jetties, etc. The Navy is responsible for clearing bombs, mines, etc. below the high water mark.

**Channels of Maintenance and Supply.** a. Supply. Initial issue of vehicles weapons, and tools will be automatic from SOS Depots direct. Brigade units will obtain parts, including assemblies and sub-assemblies, accessories and equipment required for replacement at the Ordnance Maintenance Company in Brigade. Requisitions for equipment not exchangeable directly will be presented to the Ordnance Maintenance Company of Brigade and may be filled to the extent of a 15 day supply. The Maintenance Company will operate a back order system for requisitions not filled.

b. Maintenance: Brigade units will evacuate Ordnance materiel which cannot be repaired to the Ordnance Maintenance Company. Brigade units other than the Ordnance Maintenance Company will not cannibalize Ordnance equipment. Unserviceable material will be handled through maintenance channels. The Brigade Ordnance Maintenance Company will evacuate material which it cannot repair to the Army fourth echelon Ordnance Maintenance unit assigned to its support.

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## SECTION III

## AMMUNITION HANDLING AND SUPPLY

**General.** There is attached to each E.S.B. one Ordnance Ammunition Company (with 15% overstrength) whose mission is to receive, store, classify and issue all Class V supplies (Ordnance, Chemical, and Engineer) entering over the beaches operated by the Brigade, until this function is assumed by Army. This company is normally reinforced with labor from elsewhere in the Brigade either from Quartermaster or Engineer units.

**Operations** a. During initial stages of an amphibious landing, the Ammunition Company is divided into 3 platoons of about 60 men and 2 officers apiece, each of which is a part of a Battalion landing team. Platoon commanders accompanying the battalion reconnaissance party. This party includes a transportation officer and a road construction expert. This party is charged with responsibility for reconnoitering the beach dumps to be opened at second wave.

b. Ammunition loaded during the assault (first wave) in light craft is handled over the beach by Engineer or Quartermaster service units, under supervision of qualified individuals from the Ordnance Ammunition Company who unloaded into available trucks or directly onto the beach above High Water mark.

c. The Ammunition Platoons normally go ashore on second wave to operate the beach dump previously reconnoitered by the reconnaissance party. The beach dump must be prepared to issue to combat units immediately upon opening.

d. For a period of not more than one or two days the beach dump receives all Class V supplies. It is anticipated that space will be extremely limited and that traffic will be congested. Every effort must be made to hold down time of cargo trucks to a minimum at the dump. Ammunition Company Commanders must constantly arrange for labor to be supplied them from elsewhere in the Brigade. The Brigade Ammunition Officer is their medium for obtaining necessary labor and mechanical handling equipment.

e. As soon as it is practicable to establish an inshore classification dump on the Beach Maintenance Area, all Class V supplies are routed direct to that dump. It should be located not more than 5 miles from high water. The following points should be considered in selecting the site:

(1) This dump will become a main Army Ammunition Depot. To avoid rehandling, initial site must be capable of expansion to accommodate tonnages in accordance with the Army plan.

(2) Due to the fact that this dump will have a major share of the traffic from combat units, it should be on the outside (inshore side) of the beach maintenance area.

(3) The establishment of more than one dump to be fed from a single cargo import area should be avoided so as to eliminate difficulties in balancing ammunition stocks.

f. By the time this dump is established, Army Ammunition Battalion Headquarters and several Ammunition Companies should be ashore. The Brigade Ammunition Officer is charged with the responsibility for establishment and initial operation of the inshore classification dump. He should coordinate the selection of its site with the Army Ammunition Battalion Commander and with the Ordnance Officer of the senior Field Force Commander ashore. This dump is operated as an ASP in accord with Army Ordnance Standing Operating Procedure. As soon as sufficient Army Ordnance Ammunition troops are ashore, this dump passes to Army control. Until assumption of Army control, authority to establish priority for issue, and restrictions on issue, if required, is vested in the Ordnance Officer of the senior field force Commander ashore.

**Responsibilities.** a. The Brigade Ammunition Officer is responsible to the Brigade Commander for the handling of all Class V supplies entering or leaving the beach and beach maintenance area. In particular his duties are as follows:

(1) Supervision of training and operation of ammunition companies and other service units of the Brigade in ammunition handling operations.

(2) Arrangement for provisions of adequate labor, transportation, and mechanical handling facilities for one within dumps and ASP's, with the limits of availability within the Brigade, or by requests on field force Ordnance Officers.

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(3) Coordination with other staff officers of the Brigade on such subjects as traffic control, unloading priorities, and equalization of flow of supplies.

(4) Assistance to field force Ordnance officers by providing them with information in quantity, type, and location of stocks; and by enforcing priorities for issue (See par 2f).

(5) Reconnaissance for establishment and initial operation of first inshore classification dump in the Beach Maintenance Area, including liaison with field force Ordnance Officers to make maximum use of available troops, and to arrange transfer of responsibility for operations to the Army Ordnance Officer at the earliest practicable date.

(6) Supervision and collection of daily stock reports from all ammunition installations, and distribution of copies of all reports to the Brigade Commander and to Army and Corps Ordnance Officers. Standard Army Ammunition Reporting forms will be used.

(7) Provision to Combat Unit Ammunition Train Commanders of all information necessary to allow them to fill their requirements for all Class V items, particularly their items which are in short supply in one or more supply points and available in others.

**Ammunition Company Commander.** (1) Operation of Beach Dumps and initial inshore classification dumps in Beach Maintenance Area.

(2) Making known to Brigade Ammunition Officers his requirements for labor, transportation, and mechanical handling equipment.

(3) Traffic control within his dump area.

(4) Issues to combat units.

(5) Provisions of importance to Ammunition Train Commander as to location of certain stocks that may be short in their own dumps.

(6) Preparation of periodic reports as required by Brigade Ammunition Officer.

**Training.** a. During the training period before an operation. Company Commanders should train their companies to operate both by platoon and by company. The individual platoons must be provided with sufficient depot office personnel to handle all records necessary to prepare accurate and complete status of stocks reports. Training must include emphasis on prompt and accurate issues to combat units, concurred with receiving the large quantities of ammunition which will arrive over beaches. In this connection, traffic control in dump areas is a major problem which should be solved by the Brigade Transportation Officer, Brigade Ammunition Officer and ASF Commanders.

b. Maximum attention during training will be given to identification and segregation of types of ammunition. Every individual in an Ammunition Company must be capable of identifying, by abbreviated standard nomenclatures, every type and kind of standard ammunition item. Segregation must be automatic and habitual on the part of every individual. Even in the earliest phases of receiving ammunition over the beach, types (including fuze types) must be segregated, if only by making a separate stock in the same area.

c. While safety distances must be observed where possible there must be no hesitation in ignoring this requirement if necessary. Relative hazard from attack is the determining factor.

d. For initial operation (prior to establishment of classification dump) all ammunition personnel must be trained to locate and assemble components of complete rounds of separate loaded artillery ammunition. Brigade ammunition officer will assure inspection of other supply dumps to assure that *all* ammunition is in ammunition dumps.

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*Abbreviations Used in This Table*

| | |
|---|---|
| AR | Army Regulations |
| BFM | Basic Field Manual |
| EM | Enlisted Men |
| FSMWO | Field Service Modification Work Order |
| FM | Field Manual |
| OEC | Ordnance Equipment Chart |
| OPSR | Ordnance Provision System Regulations |
| OSM | Ordnance Safety Manual |
| OSSC | Ordnance Shipment and Storage Chart |
| SNL | Standard Nomenclature List |
| T/A | Table of Allowances |
| T/BA | Table of Basic Allowances |
| T/E | Table of Equipment |
| T/O | Table of Organization |
| T/M | Technical Manual |
| WDMWO | War Department Modification Work Order |
| WDSB | War Department Supply Bulletin |

*Indexes Available*

AR 1-5, 1-10
ASF Cat. ORD 2 OPSI
FM 21-6, 21-7, 21-8
OFSB 1-1
T/O Subject Index
WDSB 9 OEC 1
WDSB 9-1

*Ordnance Field Manuals*

| | | |
|---|---|---|
| FM | 9-5, | Ordnance Service in the Field. |
| | 9-6, | Ammunition Supply. |
| | 9-8, | Ordnance Operations in the Communications Zone. |
| | 9-20, | The Ordnance Company, Battalion, Ammunition. |
| | 9-25, | The Ordnance Company, Depot. |
| | 9-40, | Unexploded Bombs, Organization and Operation for Disposal. |

*Subjects With Publications Applicable Thereto*

| | |
|---|---|
| Ammunition: | |
| Allowances, for combat | ASF Cat. ORD 11, SNL's P, R, S, & T |
| Allowances, training ammunition | AR 775-10 |
| Artillery | TM 9-1901 |
| Bombs | TM 9-1980 |
| Company and battalion | FM 9-20 |
| Description of types | TM 9-1900 to 9-1999 incl. |
| General | TM 9-1900 to 9-1999 incl. |
| Grenades | TM 9-1985 |
| Identification code | WDSB 9- |
| Inspection | TM 9-1904 |
| Land mines | TM 9-1940 |
| Maintenance | TM 9-1940 |
| Nomenclature, shipping names, freight classification, complete rounds | ASF Cat. OPD 11, SNL's P, R, S, & T |
| Packing and marking | TM 9-1900 to 9-1999, incl. ASF Cat. ORD 11, SNL's P, R, S, & T |
| Pyrotechnics | TM 9-19 81 |
| Small arms, maintenance | TM 9-1900 |
| Storage, care, and maintenance | TM 9-1900, OSM, OFSB series No. 3, WDSB |
| Supply | FM 9-6 |
| Transportation, motor truck | TM 9-1900 |



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| | |
|---|---|
| Artillery: | |
| Handbook of, general | TM 9-2300 |
| Explosives, military | TM 9-2900 |
| Instruction guides and texts | TM 9-200 to 9-2999, incl. |
| Maintenance | |
| Ammunition | TM 9-1900 and 9-1904 |
| Ammunition, small arms | TM 9-1900 |
| Field ordnance | FM 9-10 |
| Ordnance materiel by individual soldier | TM 9-200 to 9-999 |
| Ordnance materiel by ordnance maintenance personnel | TM 9-1000 to 9-1999, incl. |
| Ordnance materiel, inspection and repair | TM 9-1100 |
| Ordnance materiel | OFSB series No. 4, WDSBS |
| Railway rolling stock | AR 100-50 |
| Fortfications | AR 100-20 |
| Military instructions, EM | BFM (See FM 21-6) |
| Military units, organization | T/O |
| Ordnance Department, organization and functions | TM 9-2000 |
| Ordnance materiel: | |
| General | TM 9-2005 |
| Maintenance, inspection, and repair | TM 9-1100 |
| Use of | FM 23-series |
| Ordnance provision system | OPSR |
| Property: | |
| Accounting for | AR 35-6520, 45-80, OFSB 2-1, FM 9-25 |
| Disposition and sale of serviceable | AR 35-780, 35-6520, 45-30, 45-75, 45-80 |
| Expendable | AR 35-6620 |
| Issues | AR 35-6560, 350-3300 45-80, 310-60 |
| Lost, damaged, and unserviceable | AR 20-35, 30-955, 30-2145, 35-6640, 45-80, 210-70, 345-300 |
| Procurement of | AR 5-series, AR 35-6540 |
| Receipt, shipment, and issue | AR 30-955, 30-1105, 35-6560, 45-80 |
| Requisitioning | AR 35-6540 |
| Storage | AR 35-6520, 700-10 |
| Supplies, Ordnance: | |
| Authorized allowances | T/E, T/A, T/BA 9, SNL equipment section, OEC, WDSB |
| Cleaning, preserving, and lubricating materials | TM 9-850, ASF Cat. ORD 5, SNL K-1 |
| Initial allowances, organization's | Ordnance war planning equipment chart |
| Procurement | AR 5-100, 5-140, 5-160, 5-200, OFSB 2-1, 2-2, WDSBs |
| Repairing, modifying, or maintaining | OFSB series 4, WDSBs |
| Storage | AR 700-10, TM 9-850, WDSBs, OFSB 2-2, OSSC |
| Transportation | AR 30-955, OSSC, WDSBs |
| Target and target accessories: | |
| Authorized allowances | T/A |
| Nomenclature and listing | SNL, group L |
| Targets, target materials, and range construction | TM 9-855 |
| Transportation: | |
| Commercial means | AR 30-905 |
| Explosives (See Ammunition) | |
| Preparation for shipment | AR 30-940, FM 9-25, TM 9-865, 9-870 |

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Supplies (See Supplies, ordnance)
Troops AR 30-945

*General References*

| | |
|---|---|
| FM 101-10 | Staff Officer's Field Manual<br>The Officer's Guide (Edition, Summer, 1944) |
| FM 9-5 | Ordnance Service in the Feld |
| OFSB 4-17 | Standards of serviceability for shipment of equipment overseas |

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# CHAPTER 7

# TROOP AND MATERIEL MOVEMENTS

## DEFINITIONS

*Agency to Issue Movement Orders.* The headquarters referred to in the basic order issued by the Adjutant General as the agency responsible for preparation and movement of the unit to the proper port.

*Authorized Allowances of Equipment.* That equipment specified by applicable T/E, T/O and E, or Special Lists of Equipment as modified by orders affecting the unit.

*Call.* Request from the port commander directing movement to the port; includes the date, and time the unit and the equipment accompanying or shipped by it, will arrive at the port; the exact destination within the port area is also included.

*Concentration Area.* An area for the assembly of troops, designated as such in movement orders; a concentration area is not to be confused with the staging area.

*Filler.* An officer or enlisted person required to bring a unit or organization to its initial full authorized strength, regardless of its location in either the United States or an overseas theater.

*Impedimenta.* All baggage, equipment and supplies, pertaining to a particular unit, which have been shipped by that unit or have come under its supervisory control for further shipment.

*Initial Arrival Date.* The date on which the port will be prepared to receive shortage shipments or supplies, other than equipment and impedimenta.

*Minimum Essential Equipment.* The amount of material needed by unit to preserve its integrity during movement, but without regard to performance of its combat or service mission; when used in movement orders, it refers to administrative, bivouac, individual clothing, and individually-held organizational equipment.

*Ports and Port Areas.* These terms apply equally to air or water ports and include staging areas under those commands.

*Readiness Date.* The date by which the unit will be prepared for movement to the port; if impedimenta is to precede personnel, an impedimenta as well as personnel readiness date will be announced.

*Replacement.* An officer or enlisted person to be used to fill a shortage (regardless of grade) in the authorized strength of a T/O for a definitely allotted unit or organization of the War Department.

*Rotational Personnel.* Officers or enlisted personnel in specific grades shipped overseas under a rotational policy; these are not to be confused with either replacements or fillers.

*Staging Area.* An area in the vicinity of a port and under command of the port commander, where troops are assembled prior to embarkation.

*Station Shortage Lists.* (Formerly Lists of Shortages, Initial Lists of Shortages, and Supplementary Lists of Shortages) are lists prepared by the station commander to report to the chiefs of technical services shortages of *controlled* items.

*Showdown Shortages.* The authorized items of equipment and clothing of which the unit is short, as determined at the unit showdown inspection.

*Unit.* A group of personnel, together with its authorized equipment, designated by a shipment number and letter, such as "1234-A" or "4321-M." Normally a regiment, group, separate battalion, separate company, similar organization, or detachment.

## PREPARATION OF UNITS FOR MOVEMENT OVERSEAS

The ultimate mission of every Ordnance troop unit and soldier is the support and service of the using troops in the field. For this reason, ordnance troops must always be prepared to move overseas quickly and efficiently, according to the current requirements of the War Department.

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Preparation for movement is in two parts; movement of units, and movement of individuals. These discussions are followed by sections on actual troop movement by motor, rail, and water. Since certain principles of packing, crating, blocking, and bracing are general in application, these are discussed in the supply section under the preparation of units.

The process of preparation for movement of a troop unit begins upon the date of activation; from this date, the General Staff has far-reaching plans for its authorized units. Troop training thus should include constant preparation for ultimate movement so that the unit may accomplish its mission when the War Department reveals the job to be done. This mission invariably involves movement. While the following discussion is current at the date of publication the latest War Department *POM* and *POR* texts should also be consulted.

Preparation for movement becomes concrete when the troop unit receives what has become known as a *warning order*. The warning order begins with publication (by the Adjutant General) of a War Department order directing a certain headquarters to prepare movement orders for your unit. These orders are distributed to supply services and any other agencies having a responsibility in your movement. They reach your unit through command channels; the headquarters designated to issue your orders in turn distributes the information required to your station commander and your unit commander.

NOTE A.—A-2 Priority Letters issue by ASF and the A-2 sections of the Priority Lists of Distribution of Controlled Items of Equipment of the AG 400 Series govern the processes of supply and other activities of ASF agencies, and are not to be considered warning orders.

NOTE B.—Units assigned Equipment Priority A-2-d are *exempt* from all procedures prescribed in POM.

Unit commanders, assumed to have well-organized plans for movement, should at once launch their preparations as directed in the alert orders. Experience has proved that decentralization of duties to junior officers of the command produces the best results. A commander cannot hope to prepare an entire unit for movement single handed. Usually the unit commander divides his responsibilities into the following categories, to be directed by the officer listed:

Operations; A designated officer.
Administrative; Executive or Personnel Officer.
Supply; Supply Officer.
Transportation; Transportation or designated Officer.

In ordnance units especially, the unit commander may also delegate responsibilities to key enlisted men, such as the shop foreman or the shop supply sergeant of a maintenance company. In any case, however, there should be no more than eight persons directly responsible to the commander for preparing the unit; six is an even better number. The smaller the number, the closer the supervision, and close supervision means efficiency of operation.

### Unit Commander

The duty of the commander, of course, will be the close supervision of the work of all assistants. His job will require coordination, tact, great attention to detail, and constant inspection. He should, above all, avoid excitability and confusion, as it is his example which the unit will immediately copy.

The following is a summary of specific responsibilities of the commander of a unit ordered overseas:

1. Handle all personnel problems within his unit, clearing and replacing personnel as necessary.
2. Comply with security, censorship, and classified information regulations.
3. Conduct 'showdown' inspections.
4. Prepare inventory and Showdown Shortage Report for the station commander.
5. Arrange immediately for necessary repairs to equipment.
6. Fill as many shortages as possible at home station.
7. Render all possible assistance to the station commander in preparation of 'Station Shortage Lists'.
8. Prepare requisitions for non-tariff size or special measurement clothing for six months maintenance requirements.

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9. Return property items as directed by commander of the major command concerned; this will include non-authorized items, training equipment (unless movement orders direct that it be retained), all surplus property, and property not repairable for combat service.

10. Turn in vehicles as directed.

11. Upon receipt of movement orders, report each motor vehicle that will be shipped or taken to the port (type, model, year, and U. S. registration number); this report is forwarded by the quickest means possible to the Office Chief of Ordnance-Detroit, Union Guardian Trust Building, Detroit, Michigan.

12. Insure that shipments are properly packed, crated, and marked and that a record is kept of the contents of each container.

13. Direct that no shipment be sent to the port in the clear.

14. Dispose of fund-owned property and purchase money orders or bonds. (See latest WD regulations.)

15. Caution personnel that they will not be able to see or visit friends or relatives at staging area or port.

16. Make sure that personnel dispose of all non-combat personal effects. (Letters, clothing, etc.)

17. Provide for proper servicing of all automotive equipment (IOSSC J).

18. Arrange for transportation, car commanders and train guards.

19. Prepare all but columns 1 and 2 of WD AGO Form 413.

20. Complete the required entries in the company property book [See War Department Circulars 101 and 343 (1944)].

21. Secure copies of 'Showdown Shortage Report' previously submitted.

22. Comply with instructions concerning mail.

23. If directed, provide an advance party for the staging area or port.

24. As directed by the port commander upon arrival, report either personally or through a unit officer, in readiness to accomplish the following:

a. Furnish information on shipments of organizational equipment.

b. Furnish information on relative importance of equipment to aid in loading.

c. Determine when shipments made by Chief of Ordnance may be expected.

d. Under supervision of port commander, conduct a final showdown inspection at the staging area.

e. Request the port to fill final shortages.

f. Immediately before sailing, submit WD AGO Form 413 to the port commander.

25. Segregate organizational records and reference material to be taken overseas as prescribed in paragraph B, appendix A, Minimum Essential Equipment. Dispose of nonrecords of the categories prescribed in paragraph 3b AR 345-10, and records authorized for disposal under WD directives (WD Pamphlet 12-5, "Records Administration: Disposition of Records") which are not to be taken overseas. Dispose of special classes of files described in Cir 416 WD 1944, in accordance with that circular. Box and ship as prescribed in Cir 416 WD 1944, remaining organizational records which are to be retired to storage, including the following:

a. Morning reports over 6 months old.

b. Sick reports more than 6 months old.

c. Duty rosters more than 3 months and less than 1 year old (older rosters will be destroyed).

d. Retained payrolls and vouchers more than 6 months old.

e. Any other records the destruction of which is not authorized (See WD Pamphlet 12-5).

The unit commander also has other responsibilities which are listed in the sections following.

## Operations Officer

The operations officer is the assistant of the unit commander in all details of the movement. He should be a relatively high-ranking officer of unusual ability. He will accomplish much of the liaison between the unit and other agencies at the station. Frequently in Ordnance units, he is the shop officer or depot commander. He supervises liquidation of the local current business of the unit which in most cases will be operating as a depot, shop, or service point when alert instructions

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are received. His additional duties will be carefully set down by the commander before the alert, but will constantly increase as the work of preparation goes forward.

For example, the operations officer can assist the supply officer in obtaining shortages by adding the weight of his relatively higher position to that of the supply officer. He can accompany inspectors should the commander be involved in other duties. He can determine policy in the commander's absence and make interpretations of policy at any time necessary—at the point of work, for example, when calling upon the unit commander would mean delay.

He is, then, an executive officer for movement, and his duties may best be remembered by that definition. His duties, like those of the commander, will be general in nature and supervisory in character

### Administrative Officer

The officer in the command who normally handles this work is the administrative officer. He will usually be the personnel officer and will be assisted by the unit headquarters staff. The responsibilities of this officer are many and require scrupulously close attention to detail. His work is as important to the command as eleven players are to a football team; if his work is spotty, careless, or incomplete, individual members of the unit and subsequently the unit itself will suffer. Administrative details which must be covered fully follow.

*Security.* Upon receipt of the warning or movement orders, every individual of the unit will be advised of the last sentence of the 28th Article of War which reads as follows:

"Any person subject to military law who quits his organization or place of duty with the intent to avoid hazardous duty or to shirk important service shall be deemed a deserter".

It will then be explained that entrainment or embarkation for duty overseas is considered important service within the terms of the 28th Article of War and that any person absenting himself without leave for the purpose of avoiding such entrainment or embarkation is guilty of desertion in time of war, the extreme penalty for which is death, with lesser penalties which are severe and which involve forfeiture of rights of citizenship.

An intelligence officer should be appointed for the unit. If no junior officer is available, a senior non-commissioned officer may be given this duty. The intelligence officer will report to the staging area intelligence officer within twenty-four hours after arrival there.

Secrecy concerning movement of troops is of the utmost importance and cannot be over-emphasized. All personnel must be acquainted with Section VIII, AR 380-5 (Safeguarding Military Information) and WD Training Circular 99, 1942, and will be given adequate instructions in security pursuant to par. 3, Section I of that circular. Names of organizations, routes, names of ships, destinations, POE's sailing dates, and similar information must not be discussed with any person whose official duties do not require knowledge of the movement. No personal communication of any kind will be made en route to the staging area or POE. Letters written en route will be collected by the train or motor convoy commander and turned in to the Army Postal Service Officer at the staging area or POE. No foreign exchange will be obtained prior to embarkation and no special clothing or other equipment will be purchased from commercial houses.

When, in the judgment of the responsible officer, the time element demands it, authority is granted to remove the classification stamp (SECRET, CONFIDENTIAL, or RESTRICTED) from correspondence, including requisitions, providing nothing in the correspondence directly or indirectly discloses in the same document the composition of the shipment, its destination, date of sailing, or shipment number and letter and unit designation. If any information leaks are discovered regarding the troop movement, the facts will be investigated and reported to the Adjutant General.

(See the supply section for additional pertinent instructions concerning supply.)

*Physical Examinations.* The administrative officer must be sure the unit commander's responsibility for physical examinations is accomplished as soon as possible. Medical officers at ports of embarkation will not inspect the entire unit as

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their examinations are confined to special cases; thus, all medical examinations must be accomplished at the home station.

All personnel in the unit must be given physicals and necessary dental treatment. Identification tags are checked for tetanus and blood type. All vaccination records of enlisted men must be entered in the service record; those of officers must be entered on WD MD Form 81 (immunization record). Vaccinations and inoculations include small pox, typhoid-paratyphoid, and a stimulating dose of tetanus. Stimulating tetanus shots are required for men who have not received them during the last six months.

The problem of eye glasses is now relatively simple. Each individual should have two pairs, although the lack of a second pair will not prevent a man from going overseas. The prescription should be entered in the service record under administrative remarks and, for officers, on the reverse side of the Form 81.

The administrative section must closely check the medical records after all this has been accomplished. Any errors made by medical personnel will be detected by thorough inspection of the unit records at the port and will delay processing. (See also medical requirements for individuals in section II).

*Personnel.* During the busy training period, it is possible that the unit commander has overlooked the necessity for weeding out members of the unit unable to accompany the unit overseas, but now these must be cleared from the unit. All transfers must be made prior to departure for the port area, for, after the unit has passed to the control of the port, no transfers may be made without approval of the War Department. Immediate steps must also be taken to secure replacements for the men cleared; as a last resort, replacements can be furnished from the port filler pool.

The following personnel must be cleared from the alerted unit:

1. Applicants for O.C.S., air crew (flying) training, or aerial gunnery school that have been accepted (must be for specific class). They may, at the discretion of the commanding general of the appropriate major command (AAF, AGF, or ASF) or other agency designated by the War Department, be transferred to schools or other units. This also includes men nominated for the Army, Navy, or Coast Guard Academies.
2. Any personnel considered to be subversive will be reported to the local intelligence officer. If so directed, such individuals will be transferred.
3. Officers recommended for reclassification.
4. Officers who have been recommended for relief from active duty under the provisions of Cir 485 WD 1944. Officers over age in grade will be cleared from combat units. (See Cir 6 WD 1944.)
5. Men due for discharge.
6. Men attending schools which will not be completed by departure date will be transferred to appropriate units.
7. Personnel physically disqualified or requiring hospitalization after consultation with the station surgeon.
8. Individuals who have not completed training, including their arms qualification course (rifle, pistol, carbine, or sub-machine gun).
9. All overstrength personnel (usually).
10. Men awaiting trial or result of trial by general court-martial.
11. Absentees (AWOL's) will be cleared from units prior to departure of the unit for the port, in accordance with instructions issued by the War Department and the major unit concerned. Subsequent absentees will be cleared from units while at the port on a date specified by the port commander. (See AR 615-300.)

The following personnel will not be cleared from the company but will accompany their unit overseas:

1. Disciplinary cases in which discharge is not authorized.
2. Inefficiency or inaptitude cases in which discharge has not been authorized.
3. Garrison prisoners.
4. Officers over age in grade who are properly assigned to service units.
5. Officers at general service, special service, or civilian schools, where time permits, will complete their courses and rejoin the unit prior to departure overseas; the agency issuing the movement order is responsible for their rejoining their units in sufficient time.

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In order to prevent a last minute bottleneck, it is wise to stagger leaves and furloughs as much as possible. Unless urgent military necessity prevents it, all officers and men who have not had a leave or furlough within the past six months or since they were ordered to active duty will be granted them.

All units will take timely action as directed in each case obtain to replacements up to full authorized strength. No filler replacements previously requisitioned will join the unit after it leaves the home station for the port or staging area. Replacements required at the port or staging area will be supplied from the port replacement pools.

*Mail and Censorship.* As units receiving alert orders will shortly be subject to censorship, personnel should be made familiar with censorship regulations prior to movement to the staging area. Censors should be designated according to FM 30-28; they will receive additional censorship information from the censorship control officer at the staging area. It is suggested that the unit censor post samples of letters which have been rigidly censored. Any method to bring this forceably to the attention of personnel will pay dividends in time and lives saved. Unit censor stamps are issued at the staging area where censorship is usually initiated.

Mail will be addressed as usual until receipt of further instructions at the staging area. All personnel affected by movement orders must prepare change of address cards (W.D.., A.G.O. Form 204) not less than five days prior to departure. All information is placed on cards except the APO number and postmaster. This information will be placed on the cards by the home station postal officer when they are mailed three days prior to the departure of the unit:

Pvt. 1cl. David C. Doe, ASN 0000000

000 Ordnance Med. Maint. Co.

APO .....*..... c/o Postmaster .....*.....

( * to be filled in by post postal officer.)

Unit commanders will receive their APO number and postmaster just prior to departure from their home stations; unit personnel will be provided with the APO number and postmaster upon arrival at the staging area. Upon debarkation at a destination outside the continental United States, personnel will be advised of their permanent cable and mailing address; they, in turn should advise friends and relatives of the same.

*Unit Funds.* Unit funds and owned property which does not accompany units overseas will be disposed of as prescribed in AR 210-50 and Cir 344 WD 1944.

Unit funds should be converted into treasury bonds or US treasury check, leaving some cash, the amount being determined by the higher commander. Of course, an outfit having considerable funds should convert some into government bonds. Treasury checks may be requested in any convenient amount, but not more than 10 in number will be requested or issued. Only finance officers can convert treasury checks into cash. Government bonds can be deposited with the Treasurer of the U.S. and the receipts filed with fund records. Treasury checks should be made payable to the fund custodian: an example with full references that should be shown follows:

"Pay to the order of custodian
"Battery Fund
"Battery B
"384th Field Artillery Battalion"

Treasury checks are drawn by the disbursing officer and indorsed to the custodial officer. Treasury checks must be converted as soon as possible after arrival overseas.

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*Personal Affairs.* Officers should check all identification cards, credentials, official records, driver permits, etc., to be sure that the organizational designation of the individual or the approving officer is not disclosed.

All military personnel should arrange their personal affairs and legal matters so that they may leave on short notice without creating financial problems for their families. All men should be checked to see that they have proper identification. They should also make large allotments to their dependents as they themselves will need little money while overseas. All men should be thoroughly familiarized with the provisions of national service life insurance. Officers and enlisted men having dependents and household goods to be moved at government expense must be provided with extract copies of movement orders; WD Circular 245 1944 gives complete information on movements of household goods. Dependents must have powers of attorney to sign vouchers and official requests for movement desired. Personnel should be given all information and assistance regarding powers of attorney, wills, and joint banking accounts. Unit commanders are responsible that individuals are acquainted with the Servicemen's Dependents Allowance Act and interpretations of some. More details on this subject are contained in Section II.

*Records and Reports.* Service Records will be checked at the home station, preferably by an inspector general, and will be carried by hand so as to be available at all times. Service records or papers pertaining to individuals not sailing will not be taken.

Officers and enlisted men will carry the following on their persons upon movement:

## PERSONAL BAGGAGE

(Trunk lockers, barracks bags, bedding rolls, flying bags, etc.)

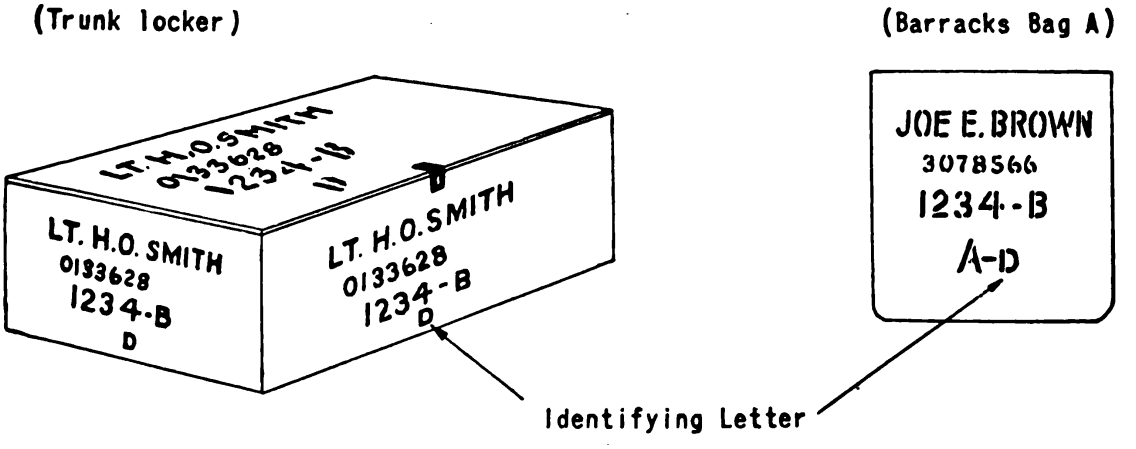



**Figure 1. Personnel Baggage Marking.**

Identification Tags (All personnel).
Pay Data Card, WD AGO Form 77 (Officers).
Individual Pay Record, WD AGO Form 28 (EM).
Identification Card, WD AGO 65 (Officers).
Immunization Register, WD MD Form 81 (Officers).
WD MD Form 78a, Patients Record of Syphilis Treatment (where applicable).
Flying personnel will carry in addition to the above:
Copy of orders announcing rating,
Copy of orders authorizing flying status,
Immunization Register WD MD Form 81, if traveling by air.
WD AAF Form 121, Individual Issue Record (Enlisted personnel).
Unclassified extract copies of movement orders, omitting classified material,

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# SHOWDOWN SHORTAGE REPORT

~~FINAL REPORT OF STATUS OF~~ ORDNANCE **ORGANIZATIONAL EQUIPMENT**

AAF-CWS-ENG-MED-ORD-QM-SIG-TC

Control Approval Symbol DOL-99

| PREPARED BY → | STATION COMMANDER | | UNIT COMMANDER | | | | | | PORT COMMANDER | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Received at Port Incl. Staging Area | | Shipped Overseas | | | | Status as of Embarkation | | | |
| ITEM NUMBER | ITEM (INSERT BASIS: (See Para. 8 Form 413-1) T/O & E 7-11 to 7-14 incl and 7-16 to 7-19 inclusive, 26 Feb 44, with 2 changes (Standard Nomenclature) | Authorized Quantity | On Hand Fully Combat Service-able and Undergone Inspection | Showdown Shortages | Furnished From Home Station stock and Supply Depots | On it or Sl. of shortages | Rec'd. at Home Sta. against it or Sl. of shortages | Remarks | To be supplied by CO Theater Commander | From Home Station | From Tech Service | Quantity | Vessel | Quantity | Vessel | Remaining at Port | Enroute to Port | Not Enroute to Port | Final Shortage |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13a | 14a | 13b | 14b | 15 | 16 | 17 | 18 |
| 1 | Binocular, M13 | 324 | 299 | 25 | | | | | | | | | | | | | | | |
| b/ | - - - - - - - - - - - - - - - - - - - - | - - - | - - - | - - - | - - - | - - - | - - - | | | | | | | | | | | | |
| 8 | Launcher, Rocket, 2.36" M9A1 | 112 | 0 | 47 | | | | Note a/ | | | | b/ | Items omitted | | | | | | |
| | (11 lines would be skipped here as prescribed in par. 7, WD, AGO Form 413-1) | | | | | | | | | | | | from example | | | | | | |
| b/ | - - - - - - - - - - - - - - - - - - - - | - - - | - - - | - - - | - - - | - - - | - - - | | | | | | | | | | | | |
| 23 | Pistol, automatic, cal. .45 M1911A1 | 293 | 168 | 125 | | | | | | | | | | | | | | | |
| b/ | - - - - - - - - - - - - - - - - - - - - | - - - | - - - | - - - | - - - | - - - | - - - | | | | | | | | | | | | |
| 52 | Launcher, Rocket, 2.36" M9 | 0 | 65 | 0 | | | | See line 8 Note a/ | | | | | | | | | | | |
| | ~~Authorized substitute~~ on hand. Item entered by unit. | | | | | | | | | | | | | | | | | | |
| | | | | | | | | William L. Smith Colonel, Inf ~~(Unit Commander)~~ | | | | | | | | | | | |

| W.D., A.G.O. Form No. 413, 1 March 1944 | This form supersedes W.D., A.G.O. Form No. 412 which will not be used upon receipt of this revision. | Shipment number and letter | Station | FOR PORT USE ONLY | | Page No. |
|---|---|---|---|---|---|---|
| | | | Camp Butner, N.C. | Date | Date Signature | |

a/ Authorized substitute included in amount of authorized item on hand.

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W. D., A. G. O. Form No. 413-1
1 March 1944
This form supersedes W. D., A. G. O. Form No. 413-1 which will not be used after receipt of this revision.
A-2d, A-4d, or AAF units in A-4 priority

Control Approval Symbol 1054-99

SUBJECT: Final Report of Status of Organizational Equipment.

Date _____
(Date furnished to unit commander by home station commander)

To: _____

This report consists of one page of Form 413-1 and _____ pages of Form 413.
Pages are not included for the following Technical Services of which no equipment is authorized for this unit.

_____
(Appropriate port commander)

Unit _____
(Shipment number and letter only)

## AUTHORIZED ALLOWANCES OF EQUIPMENT (As defined in POM)

Indicate authority for equipment and quantity entered in Columns 2 and 3, Form 413.

T/O and E, T/E or T/BA No. _____ Date _____ Change _____ Date _____

SLoE (Date only) _____ Change _____ Date _____ Change _____ Date _____

Date _____ Date _____

I CERTIFY that, to the best of my knowledge and belief, entries in this form and in columns 1, 2, and 3 of Form 413 are correct and conform to the authorized allowances of Equipment for subject unit.

Signed _____
(Station commander)

I CERTIFY that, to the best of my knowledge and belief, entries for which I am responsible in this form and in Form 413 are correct.

Signed _____
(Unit commander)

## INSTRUCTIONS

### SECTION I—GENERAL

1. Form 413 will provide a record of the status of organizational equipment at various stages throughout the unit's preparation for, and movement to, oversea destination.

### SECTION II—ACTION TO BE TAKEN BY THE HOME STATION COMMANDER

2. Prior to issuance of W. D. Movement Orders, the term "Unit" will apply to a regiment, a group, a separate battalion, a separate company (or similar organization) or a detachment, and Forms 413 and 413–1 will be prepared for such units. If, after issuance of W. D. Movement Orders, the unit designated by shipment number and letter differs from the unit for which Forms 413 and 413–1 have been previously prepared, the station commander will make adjustments necessary to conform to the unit as designated in W. D. Movement Orders.

3. Immediately upon notification of the unit being placed under W. D. Movement Orders, Warning Orders, or under Equipment Priority A–2, A–3, or A–4, the station commanders, after collaboration with the unit commander and in accordance with information supplied by the major command (as directed in POM), will prepare 12 copies of this form and Form 413 completed through column 3. This procedure is not applicable to units in equipment priority.

4. Prior to issuance of shipment number and letter, attach a cover sheet (any blank sheet of paper) indicating the unit designation. On receipt of W. D. Movement Orders, this cover sheet will be removed. The shipment number and letter of the unit and the port will then be entered in the space provided on each form. When more than one port is involved in the movement of the unit, the personnel port will be entered in the space provided. Both shipment number and unit designation in the clear must not under any circumstances be entered on Forms 413 or 413–1, as this would make it necessary to classify the report as confidential.

5. Enter the date and number of the applicable T/BA, T/O and E, and SLoE, as modified by W. D. Movement Orders affecting the unit, in the space immediately above column 2 of Form 413.

6. Number each item in column 1 in numerical sequence for each technical service, commencing with the number 1.

7. List in column 2, on separate sheets for each technical service, all items authorized by applicable T/BA, T/O and E, and SLoE, as modified by W. D. Movement Orders affecting the unit except T/E 21 items which will not be included. Each separate type of vehicle, piece of wheeled or tracked equipment, boat, airplane, and individual weapon over .50 cal., will be allotted 1 line for every 10 pieces of equipment authorized. In so doing, the standard nomenclature of the type will be entered in column 2 and the total authorized quantity of the type there will be entered in column 3. Directly under the nomenclature of each type there will be allotted in column 2, spaces equal to the ratio of 1 to 10 for each piece of equipment or a major fraction thereof for every type. Example: 36 trucks ¼ ton, 4 x 4, allow four lines; 34 trucks, 2½ ton, 6 x 6, allow three lines. Report the total authorized quantity of each separate type of vehicle, piece of wheeled or tracked equipment boat, airplane, or individual weapon over .50 cal. on the first line allotted only. Component parts of sets, kits, and assemblies will not be listed; only the nomenclature including the set number will be entered.

8. Fill in column 3, indicating the authorized quantity of each item.

9. Collaborate with the unit commander in the preparation of column 6, supplying information on items to be furnished from station stock or supply depot.

10. Number pages of Form 413 consecutively before making delivery to unit commander.

11. Attach one copy of Form 413–1 to the required number of pages of Form 413.

12. Sign in the space provided above.

13. Deliver 12 copies of this form and Form 413, completed through columns 1, 2, and 6, to the unit commander.

14. Enter in columns 4 to 8 inclusive, information furnished by unit commander on Form 413 if organization does not have a wide carriage typewriter.

### SECTION III—ACTION TO BE TAKEN BY THE UNIT COMMANDER

15. Collaborate with station commander in the preparation of columns 1, 2, and 3 of Form 413. The responsibility for preparation of columns 1, 2, and 3, however, rests with the station commander.

16. Withdraw one copy to be used as a work sheet (pencil notations recommended).

17. Immediately subsequent to show-down inspection (as directed in POM) fill in column 4, listing only those items on hand fully combat serviceable, or which can be promptly placed in combat serviceability at home station.

18. Enter show-down shortages in column 5 (the difference between columns 3 and 4). Shortages of accessories and component parts of sets, kits, and assemblies will be listed on separate sheets of Form 413 and entries will be made in all columns of such appendices in accordance with instructions contained herein for Form 413.

19. A signed copy of Form 413 complete through column 5 may be submitted to the station commander as the show-down shortage list for the unit, which will comply with the instructions contained in POM. The number unserviceable will be reported in column 18 and the heading: "Cancelled" changed to read: "Unserviceable on Hand," for this copy only.

20. In collaboration with the appropriate station supply officer, fill in column 6.

21. In column 7, enter the total shortages reported on initial and supplementary lists of shortages.

22. Enter in column 8 quantity received at home station to fill initial and supplementary lists of shortages.

23. Do not include in any column items received in exchange for equipment previously reported in columns 4, 6, and 8.

24. The commanders of Army Air Force units with flight echelons will annotate Form 413 to indicate the items of equipment which will be moved overseas by air.

25. Sign in the space provided above.

26. Forward one copy complete through column 8 to each of the port commanders designated in W D. Movement Orders 6 days prior to readiness date (impedimenta readiness date, if announced).

27. Submit one signed copy completely through column 8 to the station commander prior to departure from home station.

28. Deliver one copy to each unit supply representative if ordered to a port in advance of the unit.

29. Immediately upon arrival at the staging area, five copies for AGF and ASF units, or six copies for AAF units (and such additional copies as may be required by the commander of the personnel port in order to comply with par 30 below) completed through column 8, will be submitted to the commander of the port through which the personnel will move (personnel port).

### SECTION IV—ACTION TO BE TAKEN BY THE COMMANDER OF THE PERSONNEL PORT

30. Immediately forward two copies of this form and Form 413, as submitted to him by the unit commander, to the commander of other ports, through which equipment for the unit is moving.

31. Complete five copies for AGF and ASF units, or six copies for AAF units, entering only those items of the unit's equipment shipped through the personnel port.

32. Fill in column 10, indicating all quantities to be furnished to the unit by the oversea theater commander. This information will be made available to the unit commander.

33. Fill in columns 11 and 12 to indicate all quantities received at port, including staging area, from home station and from chiefs of technical services.

34. Make appropriate entries in columns 13 and 14 to indicate the quantities of each item loaded on each individual vessel.

35. Immediately after the unit sails, fill in columns 15, 16, and 17 to indicate "Status of Equipment at Embarkation," specifying in column 15 quantities remaining at port of embarkation, quantities (in column 16) en route to port as of embarkation and quantities (in column 17) not en route to port as of embarkation.

36. Column 18 will include all items that are not covered by columns 15, 16, and 17 representing final shortage.

37. If the personnel port is not responsible for the delivery of supplies to the oversea base or theater which is the destination of the unit, the personnel port will forward four copies for AGF and ASF units, and five copies for AAF units to the port responsible for the delivery of supplies to the oversea base or theater (the supply port) immediately upon completion.

### SECTION V—ACTION TO BE TAKEN BY THE COMMANDER OF THE SUPPLY PORT

38. Consolidate, complete, and finally edit all Forms 413 for units moving to an oversea base or theater for which he has responsibility for the delivery of supplies.

39. Be responsible for timely procurement of all Forms 413 from all other ports involved for units moving to an oversea base or theater for which the delivery of supplies is his responsibility.

40. Make distribution of Forms 413 and 413–1 as follows:
- a. The original to the CG, ASF, Attention: Distribution Division, Washington 25, D. C.
- b. One copy to the CG, oversea base or theater concerned.
- c. One copy for AAF units to CG, AAF, Attention: Chief, Statistical Control, Washington 25, D. C.
- d. One copy to be retained by the supply port commander.

### SECTION VI—ACTION TO BE TAKEN BY THE COMMANDERS OF ANY OTHER PORTS

(Ports involved in the movement but which are neither in the personnel nor the supply port.)

41. Complete two copies of the Form 413 for that portion of the equipment of the unit to be shipped through that port. These forms will be received from the personnel port in accordance with par. 29.

42. Forward one completed copy to the commander of the supply port immediately upon completion but in no case later than 15 days. The remaining copy will be retained by the commander of that port for his own record.

16—41864-1

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**Figure 3. Final Report on Status of Equipment WD AGO Form 413-1.**

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are to be furnished the unit personnel section or other reporting source to permit prompt preparation of reports of change.

Notification of movement must be given to the machine records unit at home station and port. Two sets of locater cards from machine records, one to remain with the organization and one for the staging area postal officer, are prepared. Other rosters will be prepared as required by the port commander.

*Personal Baggage.* A point frequently neglected is the carrying of personal baggage; everything needed for the trip plus several days after landing must be carried.

Officers are limited to 175 lbs., including one trunk locker, one bedding roll (not over 50 lbs.), one piece of hand luggage (not over 40 lbs.), and one musette or field bag. Bedding rolls and trunk lockers are not accessible during the voyage Enlisted men will carry individual equipment and barracks bag 'A'; Bag 'B' is not available during the trip. (See Figure 1.) The minimum clothing to be carried by enlisted men is: one overcoat or mackinaw, one blouse when winter clothing is authorized, one raincoat, one cap, one necktie, and one complete change of outer clothing including shoes. In addition to the above items, men also carry their rifles, gas masks, and steel helmets.

## Supply Officer

The regular supply officer of the unit normally is selected to handle all supply matters for the unit. Since the work load will be at least tripled by last minute requirements, his group must at the time of alert immediately be reinforced by additional personnel. A junior officer, released from his normal work by the secession of unit operations, may assist the appointed supply officer. Several capable noncommissioned officers should assist the unit supply sergeant by taking charge of such specific jobs as marking equipment; packing and crating; and drawing and issuing supplies. Laborers must be drawn from the operating personnel of the unit to furnish work details for the supply group, the responsibilities of which follow. The usual supply problems fall into two broad categories: filling shortages and preparing equipment for movement.

It is a general principle that units will be as completely equipped as possible at the home station. The procedures set up in POM are designed not only toward this end but to relieve the unit commander as much as practicable of the job of procuring the materiel to fill his shortages individually.

The station commander will issue the prescribed copies of WD, AGO Form 413, Final Report of Status of Organizational Equipment (See Figures No. 2 and No. 3) to the unit commander, who will make appropriate entries thereon.

Upon receipt of warning orders, equipment priority A-2, or movement orders, the unit commander will promptly conduct a showdown inspection or inventory of the equipment of the unit (T/E 21 items only when under movement order). This inspection will be a thorough, accurate count of all items on hand, and while the supply section will handle details, the unit commander will normally conduct this inspection personally.

From this, a "Showdown Shortages Report" will be compiled separately for each service showing for each item (1) the number authorized, (2) the number on hand fully combat serviceable or which can be promptly placed in combat serviceability at the station, (3) the number unserviceable, and (4) showdown shortages, i.e.—the number required to complete equipment with fully combat serviceable articles (1 minus 2 above).

In the case of T/E 21 items, shortages will normally be filled at the home station of the unit and incorporated into lists of shortages only after the unit is under movement orders. Prior to receipt of the movement order, the unit will, of course, obtain such items by requisition and exchange in the normal manner. Promptly upon receipt of movement orders, the unit commander will conduct a showdown inspection of such equipment; shortages will be filled in the same manner as described herein for other equipment.

In order to save wear and tear on T/E 21 items to accompany the unit, personnel of the unit under movement orders are permitted to keep for use during the final period of preparation certain items of clothing, which are unserviceable for combat, and are in excess of T/E allowances. These include shirt, trousers, and cap, or one working outfit; one pair of shoes; and undergarments if available.

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They will be turned in to the station commander just prior to departure. As well, non-authorized excess property will be turned in to the local supply facilities.

As soon as the above mentioned "Showdown Shortages Report" are received from the unit commander, the different post supply officers will use them as requisitions, filling shortages of available, non-controlled items. If not in local stock, supply officers will make every effort to locate the items at the depots serving the station in order to fill remaining shortages before the unit moves from the station. Warning orders, equipment priorities, and movement orders carry equipment deadline dates for this purpose.

The station commander will prepare lists of Controlled Equipment Shortages (Station Shortage List) and submit them to the appropriate chiefs of technical services. No Station Shortage List will be prepared for non-controlled items. Substitutes for shortages will be issued when necessary, to be retained by the unit until replaced by authorized items; but items short, for which substitutes have been issued, will nevertheless be reported as shortages. The station commander will, for units under movement orders, prepare an Equipment Delivery Report listing controlled and non-controlled items of equipment (except T/E 21 items) which has not been received at the station by 7 days prior to the Impedimenta Readiness Date to fill shortages. The Equipment Delivery Report will be submitted 5 days prior to Impedimenta Readiness Date. The report will be authenticated by both the station commander and the unit commander concerned.

*Disposition of Equipment.* With the exception of overseas air movements of units, certain items will be furnished at the port of embarkation or staging area. Therefore, items in the following three classes will not be taken from home stations nor listed as shortages:

1. Quartermaster equipment:

Arctic clothing and equipage.
Bars, insect, field.
Cots, canvas (except medical).
Covers, protective, individual (cellophane type).
Drawers, cotton, protective.
Glasses, sun.
Gloves, cotton, protective.
Head nets.
Hood, wool, protective.
Insect repellent.
Jackets, herringbone twill, protective.
Kits, barber.
Leggings, dismounted. Canvas, protective.
Socks, wool, light protective.
Stoves, tent.
Suits, one-piece, herringbone twill, protective.
Trousers, herring bone twill, protective.
*Tentage, heavy (TBA or T/E).
Undershirts, cotton, protective.

* Each company or equivalent unit will, however, take the following housekeeping tentage, deducting it from allowances of the unit and reporting it as shortages if necessary: one large wall fly, one latrine screen, and one pyramidal tent. This tentage must be olive drab, fire resistant, Class A issue.

2. Chemical Warfare Equipment:

Eye shield, M1.
Shoe impregnite, M1.
Kit, ointment protective, M5.

3. The general purpose vehicles listed will not accompany or be shipped from home station unless specifically directed:

Car, 5-passenger, light.
Ambulance, 1/2 or 3/4-ton.
Motorcycle.
Truck, 1/4 ton.
Truck, ¾ ton, carryall, WC, or command, W/W or W/OW.
Truck, 2½ ton cargo, or dump, W/W or W/OW. (If equipped with a 2nd echelon set No. 7, the set will be removed and packed as organizational equipment)
Truck, 1½ ton cargo or dump, W/W or W/OW.
Truck, 4 ton cargo.
Trailers, 1/4, 3/4, or 1-ton cargo.
Trailers, 250-gallon, water.
Truck, 2½ ton, SWB, W/W or W/OW.

General purpose vehicles of above types which have been adapted by the Chief of Ordnance and issued as special equipment vehicles (as listed in Cir 240 WD

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1944) will accompany the unit. Local conversions of vehicles into kitchen, radio, and supply trucks, however, are not considered official changes of classification and such vehicles will not be taken.

When the combat or special purpose vehicles listed below are turned in or transferred, the armament and accessories on the vehicles will remain with them:

Car, scout.
Car, half-track (including mortar and personnel carriers).
Car, armored.
Carriage, motor, multiple gun.
Carriage, motor, gun or howitzer.
Carrier, cargo (track laying).
Tanks, all types.
Trucks, technical, shop.
Truck, trailer tank transporter.
Vehicle, tank recovery.

Movement orders may at times direct that ordnance technical vehicles such as welding, machine shop and small arms trucks will not be taken or shipped. When such items are turned in at home station all equipment, all component tools, cabinets, machines, and accessories must accompany them. All cylinders of oxygen, acetylene, etc., will be turned in before leaving home station; the full authorized number of cylinders will be listed on the initial list of shortages.

Antiaircraft organizations will turn in to the station commander all 40 MM AA equipment and all 90 MM AA guns on M1 and M1 A1 carriages with accessories, including directors, height finders, observation instruments, and stereoscopic testers. This equipment will be reported as shortages in initial list of shortages.

*Packing and Crating.* The best equipment procured by the Army is of little value if it arrives overseas unfit for immediate combat use. To this end, constant research has been conducted in the preservation, packing, and crating of government equipment, resulting in the publication of U.S. Army Specification 100-14A. Packing and crating assistance at a post is given by the service command packing squads and Transportation Corps facilities. All equipment will be packed at home station unless it will be used en route to the port. In this case, such equipment is usually packed at the staging area. Individual items are treated as follows:

Machine guns, other than combat vehicle guns and accessories which go as company freight, will be dismounted and packed, with no other equipment in the same cases. Vehicle machine guns will be boxed and placed inside or under the vehicle; this does not increase the cubage of the vehicle. (See figure 19)

Eight copies of packing lists are prepared for each box or crate; one is placed inside. One is inserted in a separate protected place on the outside and 6 prepared for attachment to Consolidated Packing List. Waterproof envelopes covered by metal or fiberboard plates should be used for exterior containers. The lists will contain the shipment number and letter, package number, set number, and a list of contents. In listing items, full nomenclature, stock numbers, size, quantity, and arm or service should be shown. Lists must not in any way disclose the destination or where equipment is to be used.

Gasoline ranges, lanterns, and other types of equipment consuming highly inflammable fuels must be thoroughly drained. This does not apply to vehicles. Inflammable, explosive, or spontaneously combustible materials or similar articles will not be packed or shipped with organizational equipment as freight or baggage. Paint, enamel, lacquer, shellac, and cleaning materials for use during voyage or immediately upon debarking will be packed separately and clearly marked. The following certificate must be accomplished and attached to the consolidated packing list; see WD Circular 11, 7 January 1944.

Shipment Number and Letter ..... Date .....

I certify that no inflammable, explosives, or spontaneously combustible materials except those that have been packed separately from other materials and are included in containers numbered ....., ....., ....., are included in any packed containers of this organization. The containers of inflammable, explosive, or spontaneously combustible materials have been clearly marked on two sides. I further certify that those field ranges, water heaters, fuel containers, and other articles of a similar nature in which gasoline is customarily used or stored which have been boxed or crated for overseas shipment have been completely drained of gasoline.

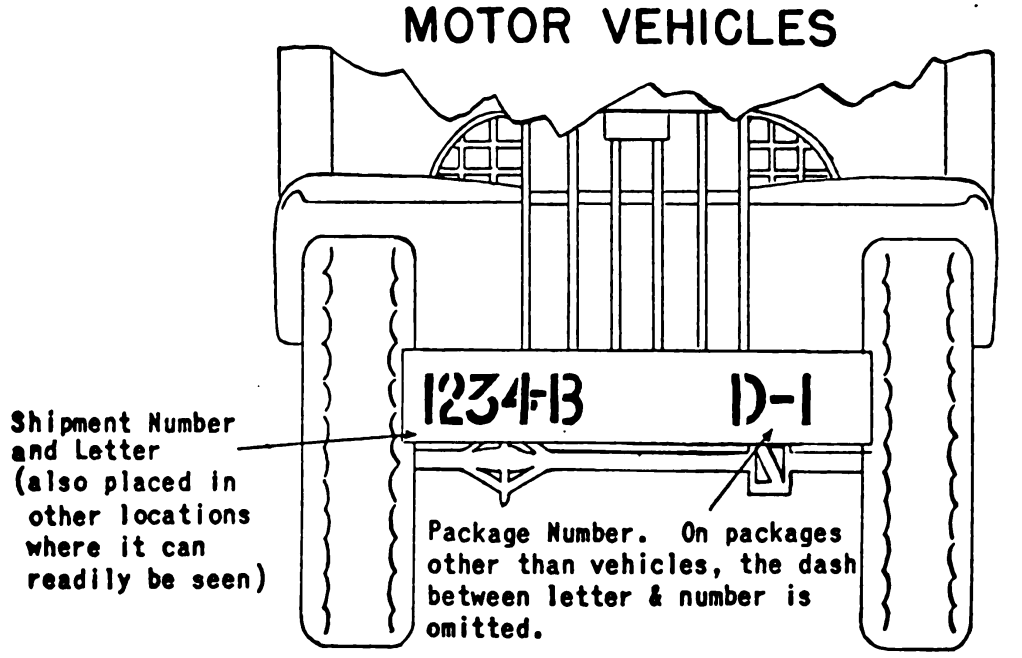
.....
(Signature of Commanding Officer)

.....
(Grade or branch)

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The company commander is responsible that baggage accompanying troops aboard ship contains no unauthorized inflammable or combustible materials. However, an allowance of two pounds per individual of emergency expendable supplies, including cleaning and preserving materials, has been established and can be shipped if properly identified as stated above. (WD Circular 55, 1944, amended by WD Circular 59, 1944).

(In the figure below, the letter "D" represents a company or similar organization, and "1234-B" represents the shipment number and letter assigned to a unit by an overseas movement order)

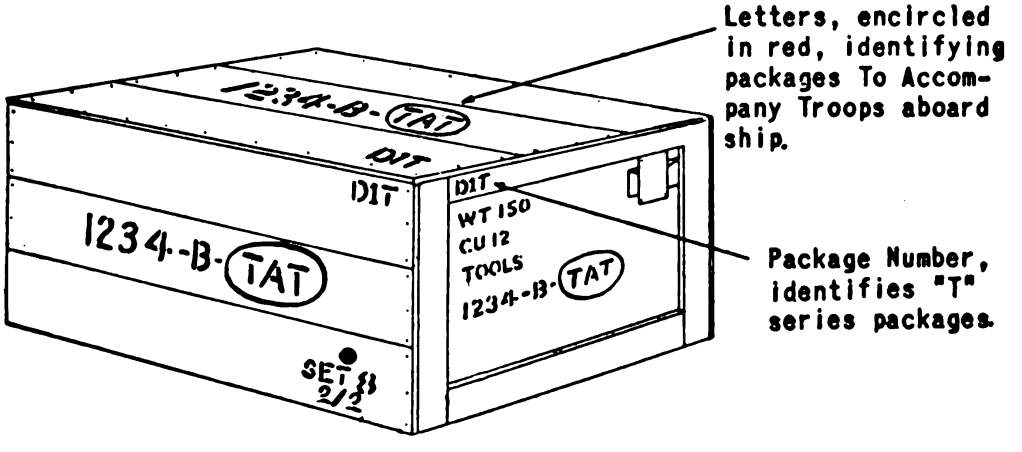



The markings on the illustration above indicate that this is the first vehicle of Company D, unit 1234-B, and therefore carries package number D-1.

**Figure 4. Vehicle Marking.**

Colors and standards will be turned in to the supply officer of regiments, separate battalions or similar units for safekeeping during transit. They may be released upon arrival overseas as authorized by base force or higher commander.

*Marking.* It is imperative that all organizational impedimenta be plainly marked,




The figure above indicates that this package is number D1T of Company D of unit 1234-B, that it is the second of two packages of set number 8 which will be shipped to the staging area and later loaded aboard the vessel carrying the troops overseas. Other markings are self-explanatory.

**Figure 5. "T" Series Package Marking.**

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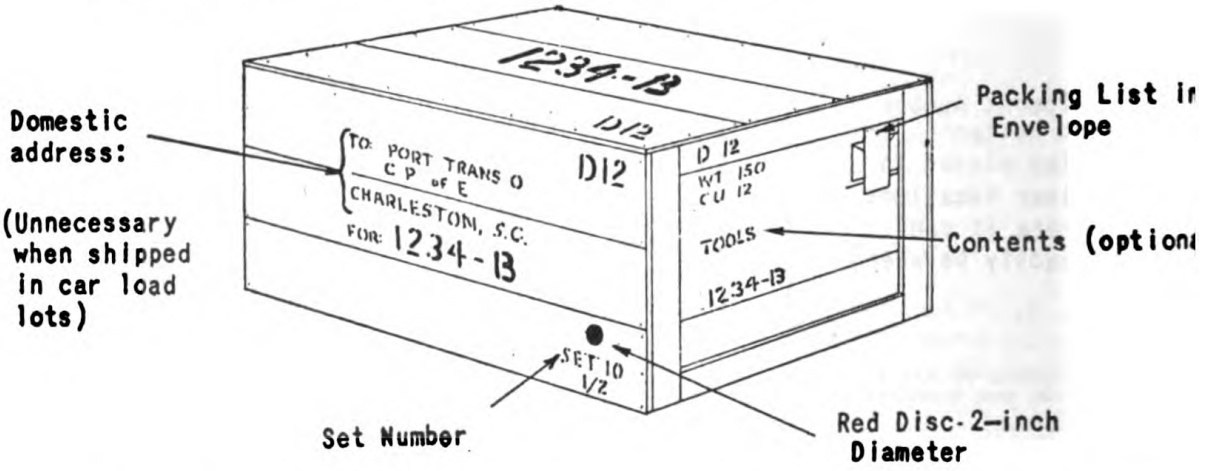
so that it can be easily identified by all handlers and carriers. Contrasting paint will be used; chalk, never.

Each container or separate article, except personal baggage and the "T" items below, will be marked or stenciled with the unit shipment number and package number. The package number is composed of a letter which designates the unit and a number, commencing with '1' for motor vehicles. Numbers progress through all vehicles and then continue with containers and packages. (See figure 4.)

All minimum essential items and other equipment as directed by the movement order to be taken with troops to the staging area will be marked with a special series of numbers, beginning with "1" and followed by "T": e.g., "H-1-T," "H-2-T." Any container except personal baggage which should be loaded aboard the vessel carrying the troops will be marked "TAT" (to accompany troops) and encircled in red: (See figure 5.)

When a set is placed in two or more containers, the components must be shipped together. Hence, each container will bear in addition to its own number (1) number of containers making up the set, (2) the number of the set within the shipment, (3) a two-inch red disc above the number on each container, signifying that they must all be shipped together. Shipments in carload lots may omit all of the domestic address except the shipment number.

Figure 6 represents examples of the above marking.




The markings used on the illustration above indicate that it is package number 12 of Company D of unit 1234-B, and that it is the first of two packages of set number 10 belonging to Company D. Other markings shown are self-explanatory.

**Figure 6. Other Series Package Markings.**

Personal baggage will be stenciled, (white on blue, or black on khaki) with the idividual's first name, initial, last name, serial number, grade in case of officers, and appropriate shipment number and letter. Officer's foot lockers are stenciled on each end. Barracks bag for enlisted men will be marked "A" and "B" but if the duffle bag alone is used, it will be marked "A." In conjunction with the marking of equipment, it is imperative that the unit commander remove or obliterate the following markings before departing from the home station: divisional, separate brigade, regimental, separate battalion and similar unit designations, markings, insignia, badges, etc. ,including shoulder patches. Painting over is not considered an effective obliteration.

Motor vehicle and other mobile equipment to accompany the unit overseas will retain only the following markings:

US registration number; shipment number and letter (1½ inches stencil on both sides of hood); national symbol; third and fourth group unit identification symbols (i.e. letter or number of company and vehicle number within unit); and tactical markings, if prescribed by proper authority. (See Figure 4).

*Shipping.* Equipment is usually shipped to the port under two categories, that shipped by the unit and that shipped by the chiefs of technical services. All other equipment is carried with the unit or by the individual.

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The packing list, an itemized list of the contents of each container, is the first record prepared. Tally-out or shipping document forms may be used. The nomenclature, quantity, unit, piece mark, or other official stock number; designation of branch issuing the item and the weight and cube of the container must be listed. When individual packing lists are completed, a consolidated master list is prepared. If packing lists are lengthy, they may be attached to the consolidated list and reference made thereon. Five copies of each packing list should be sufficient for all the agencies concerned. When a company or similar unit is assigned a shipment number and letter by the movement order, the consolidated packing list will be called the shipment packing list. Copies of the shipment packing list are distributed as follows:

Three copies are sent to the company representative at the port and presented by him at the conference with the port agency. .Two copies are retained by the unit commander; the information concerning rail shipment is placed on those copies and one of these two is sent to port as speedily as possible.

In the case of partial shipments, tally-outs are sent to the representative at the port, while the shipment packing list is held until final shipment from home station. When movement is through more than one port, separate sections of the shipment packing list will be prepared as necessary and records of all shipments will be furnished the representative at the port where unit will embark.

Proper distribution of shipment packing lists must be made to permit the port to coordinate the shipment. The port ordnance officer maintains a followup system in the task force shortage section to see that shortages are filled as speedily as possible and that all property reaches the unit. Package numbers are used by the port to check shipments, trace packages, and prepare the ship manifests. The following final distribution is made of all completed shipment packing lists:

Three copies remain at port.

One copy accompanies the unit equipment if it moves separately.

One copy stays with unit commander.

The unit representative must record receipts on shortage lists, and keep shipment packing lists up to date. The port will indicate on Form 413-1 the final status of unit equipment; any changes or cancellations will be noted in the remarks section.

At the overseas destination, the unit commander will be furnished with all information pertaining to his equipment, including cargo loading cables, manifests, and other reports. It is to be noted that manifests will arrive overseas prior to the vessel, which always permits advance planning and preparation.

The unit commander must furnish the overseas commander with the following information:

1. List of equipment authorized by movement order, from Form 413-1.
2. List of equipment shipped for the unit, from the shipment packing list, Forms 32 and 33, and list of shortages shipped by the port, with their probable date of arrival if available.
3. List of equipment cancelled by port of embarkation, from final report on shipment made to overseas commander by the port of embarkation.
4. List of T/BA or T/E shortages; these are items not authorized for the movement but which are necessary for its proper functioning.

**Suggestions on Equipment.** Some suggestions from combat and foreign service follow; they should be of value to any unit preparing to move overseas:

Every packing box or crate should be assembled with screws rather than nails. This permits the unit to re-use crates for subsequent movements after reaching the port of debarkation. Hinges should be used for crate tops whenever these are available as hinged crates can be used for bins in overseas operation of the unit.

Materials overseas are scarce and, if any of the following will be needed, they should be brought along with the unit: nails, screws, hinges, handles, light bulbs, and electric wiring and fixtures. You should not think these can be picked up here and there or obtained by local purchase overseas—these items are generally unobtainable anywhere.

Maintenance units should also be sure that all electrical equipment will operate on 110 or 220-volt direct current. Commercial electrical power is normally de-

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stroyed by the enemy, so that units depending on 110-volt commercial current alternating or other will be unable to operate. Unit generators will supply the direct current required, but do not always contain the necessary wire and fixtures when issued. The proper wire for trunk and branch power lines must be secured in the United States or the unit will be cramped in operations; this wire should never be cut into shorter lengths except on orders of an officer and it should be preserved carefully in shipment.

Train your unit to use smaller bulbs than 100 and 200 watts, for these cannot be operated in housekeeping where the normal load of ordnance shop equipment must share the same power. Private radios should contain and operate on batteries; generator current will frequently burn out tubes because of surge and naturally new tubes are unavailable.

Additional spare parts for the unit field ranges should be secured in the United States. Range cleaning brushes should also be obtained because truck gasoline constantly clogs the old-type burners and no white gasoline is reported in any theatres. Be sure new, larger generators are applied to your ranges to make their operation more efficient on red gasoline.

Finally, survey all organizational equipment for its maintenance requirements. You should have many times the normal number of mantels for coleman-type lanterns, for example. You will need plenty of replacement flashlight bulbs and batteries. Gun patches and other cleaning and preserving materials are frequently overlooked, even in Ordnance units. Provide your machine shop with as much angle, bar, and round stock as possible. How about sand soap or boraxo-type cleansers for the mechanics? Toilet paper, blank forms, small parts common, and a hundred small needs must be provided well in advance if your unit is to be as comfortable as possible in its new location overseas. And morale will certainly suffer if any of the small, easily overlooked items are forgotten. The time to provide them is now.

### Transportation Officer

The transportation officer has one of the largest responsibilities in the unit. He arranges car requirements, spotting and loading, and performs all liaison required between the unit and the Transportation Corps. The unit commander should pick an aggressive, intelligent officer with staff possibilities for this work; he must have sufficient confidence in this officer to decentralize many of his personal responsibilities so that he is freed of transportation details. He should feel of his transportation officer that, when he has given an instruction, it is as good as accomplished. The transportation officer of the unit, when assisted by non-commissioned officers and enlisted helpers, has the duties which follow.

One of the first requirements is a training schedule for loading personnel and equipment upon the transportation to be employed. If movement is by rail, for example, from 4-10 hours of loading instruction should be given. This includes practical application until troops, formed into car sections, are able to march to their cars and load into assigned seats within several moments. It should also include detailed instruction on train administration and conduct of troops en route. (See Rail Transportation.)

Upon receipt of the alert order, the unit commander or his transportation officer will contact the station transportation officer, who will obtain routings and clearances for rail or motor transportation, advise on plans and supervision of loading, and assist or handle the preparation of required reports.

The unit and its impedimenta will be dispatched to the port of embarkation so as to arrive at the time specified by the port commander. When materiel is loaded on flat cars, guards must be provided under provisions of AR 55-155. Guard personnel are returned to their organization by the port commander.

The company commander must promptly furnish the station transportation officer with the following information after loading:

Shipment number and letter used in markings.

Detailed lists showing weight and cube of items on each car with car numbers and initials.

Copies of the bill of lading will be supplied to the company commander by the post commander.

It is essential that the company commander know at all times the location of

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all items of company impedimenta. Complete and accurate records of all containers and their contents must be maintained, including packing lists, consolidated packing lists, tally-outs, and records of the cars or motor vehicles in which equipment has been shipped. It is suggested that on every page of the company property book, the box or container number of each item be recorded, as this will expedite proper unpacking at destination.

Other duties of the transportation officer are close coordination with the supply officer in all matters pertaining to the transportation of the organizational property. He will also be assigned such additional duties as the commanding officer directs.

**Blocking and Bracing.** In blocking and bracing, it is first necessary to determine the type, weight, and cubic displacement of the materiel to be shipped. When this has been done, the proper sizes of cars may be requested. A definite loading plan perfected prior to actual loading will save both time and space.

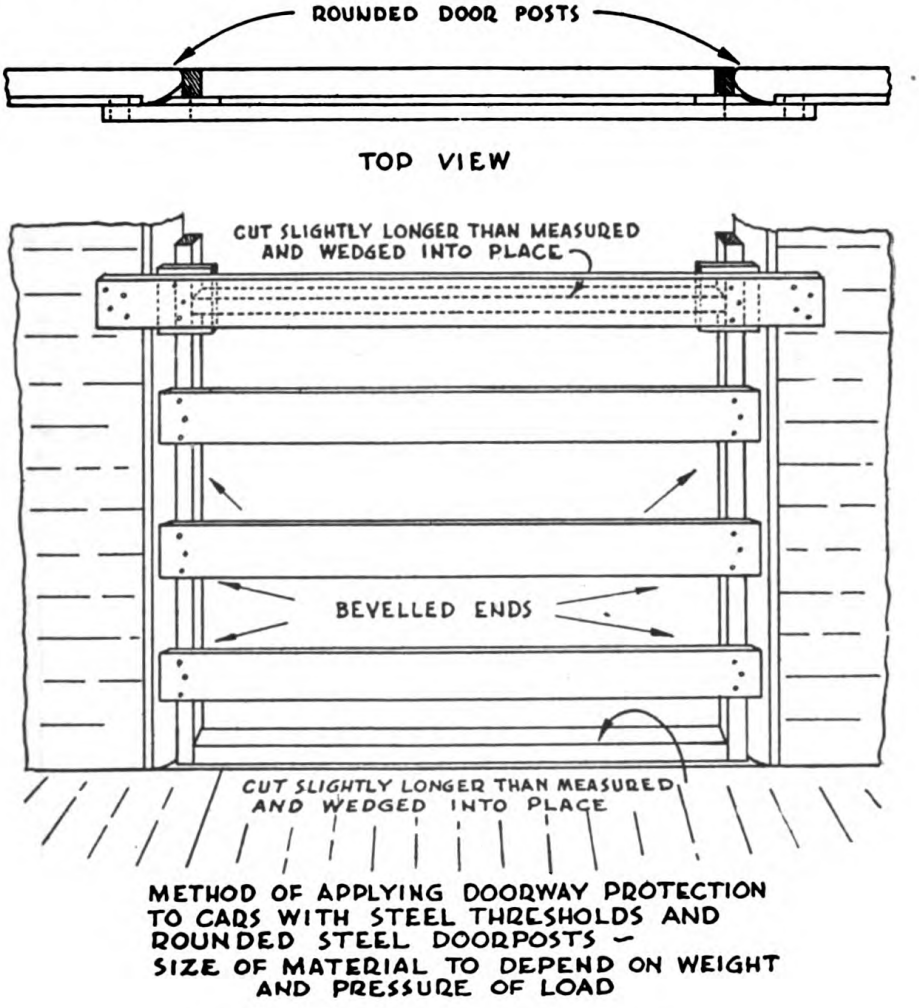



**Figure 7. Railroad Car Door Protection.**

Commercial box cars operating on common carrier lines within the continental United States are available in many lengths and widths. Dimensions run from 36 to 50.5 feet in length and from 8.5 to 9.3 feet in width; rated capacities run from 30 to 50 tons. Military box cars have a standard length of 24.2 feet, a width of 8 feet, and a capacity of 20 tons.

A complete inspection of the cars should be made upon their arrival at the dock. Nails, broken boards, dunnage and holes in the floor, sides, or roof of the car must be sought. All loose or projecting nails must be removed, but necessary nails or bolts used in the construction of the car will be hammered in or tightened.

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All holes will be covered. Cars must be cleaned and swept as they previously may have transported acids, oil, or other commodities that may be harmful to the lading to be shipped.

All heavy weights must be loaded first and the light weight commodities placed on top. The weight of the entire load must be evenly distributed throughout the entire length and width of the car.

A system of locking the boxes in the car should be used. This may be accomplished by breaking up the joints of the boxes in much the same way as a brick layer staggers the joints of bricks when laying a wall. Load commodities high at the ends of the car and gradually decrease the height toward the doors.

Commodities should never come in contact with the ends, sides, roof or doorways of the car. This method of loading will give an inherent strength in the load itself without the use of blocks and braces.

The doorways are the weakest point of a car and must be protected. When loading rough freight and/or when there are wooden door posts in the car, boards should be nailed across the doors. If freight may be damaged when it is pushed against the ends of these boards, it may be necessary to bevel the ends. If the car has steel floor posts, wooden uprights should be built so that door bracing may be accomplished. If metal bands are used across the door, they must not be less than ¾ inch wide by .030 inch thick with a tensile strength of not less than 2000 pounds. These bands must be securely fastened to the inside face of the doorposts and each band must be drawn taut and sealed at the center. One band should be placed opposite each layer and sheets of fiberboard or cardboard should be inserted beneath the bands to give a solid front to the lading . (See Figure 7).

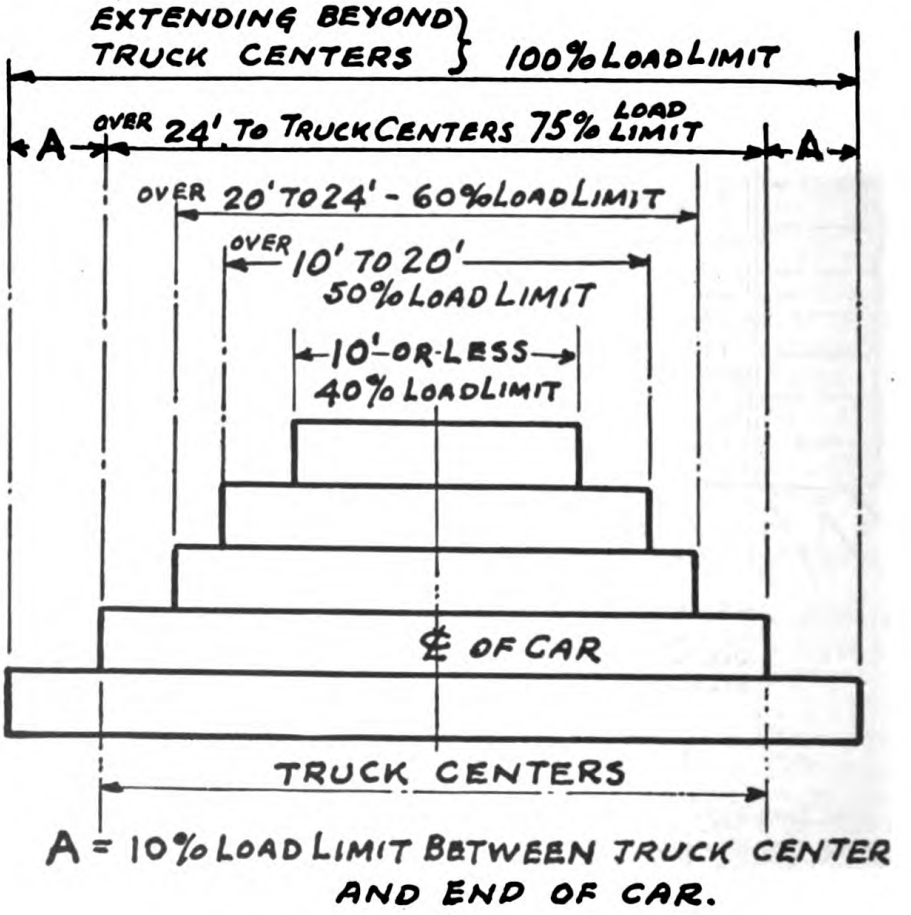



**Figure 8. Railroad Car Loading Limits.**

In loading all types of cars, care must be taken that one truck of the car will not carry more than one-half of the load limit stenciled on the car. Cars should be loaded as heavily as possible up to but not exceeding the load limit. The

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percentage of stenciled load limits for cars as listed below must not be exceeded for a load located between the truck centers and measured lengthwise with the car:

| | |
|---|---|
| 10 feet long or less | 40% |
| Over 10 feet and less than 20 feet | 50% |
| Over 20 feet to 24 feet | 60% |
| Over 24 feet to truck centers | 75% |
| Extending beyond truck centers | 100% |

Short materiel loaded between truck centers and end of cars must not exceed 20% of the stenciled load limits, i.e., 10% each end. (See Figure 8).

It is permissible to use bearing pieces of suitable strength and length on the above loads to provide distribution of weight over the specified spaces.

All machinery should be supported on skids. The number of skids used will be determined by the type and weight of machinery being transported. Skids should be secured by bolts, as nails do not hold sufficiently. Skids should be so constructed that they can also act as a handling base for the machine.

In loading different sizes of containers, every effort must be made to keep the same sizes together. A tight load must be maintained in order to prevent shifting and subsequent damage to the containers or their contents. To accomplish this, proper methods of blocking and bracing must now be applied—all designed to prevent lengthwise, crosswise, and vertical shifting. Commodities will bounce over blocks and braces if they are not tied down.

Bracing material should be dry, well-seasoned lumber which has been stored in a cool, dry place. Green lumber holds a great deal of moisture which may have a bad effect on certain types of materiel or packagings; the nail holding ability of green lumber is also much less than that of seasoned lumber. Lumber selected for this purpose should be judged for stiffness, bending, compression strength, ability to resist shocks, nail-holding ability, and resistance to splitting when nails are driven into it. It must be sound, free from cross grain, knots, knot holes, checks, and splits. Hemlock or lumber of equal strength should be used.

| THICKNESS OF MATERIAL HOLDING HEAD OF NAIL. | THICKNESS OF MATERIAL HOLDING POINT OF NAIL. | | | | | |
|---|---|---|---|---|---|---|
| | 1" | 2" | 3" | 4" | 5" | 6" |
| 1" | 6d<br>*8d | 10d<br>*12d | 16d | *16d | 16d | 16d |
| 2" | | 20d | 20d<br>40d | 40d<br>60d | 40d<br>60d | 40d<br>60d |
| 3" | | 40d<br>BOLT | 40d<br>60d | 60d<br>7" SPIKE | 7" SPIKE<br>8" " | 8" SPIKE<br>9" " |
| 4" | | BOLT | BOLT | BOLT OR<br>7" SPIKE<br>9" " | BOLT OR<br>8" SPIKE<br>10" " | BOLT OR<br>9" SPIKE<br>11" " |
| 5" | | BOLT | BOLT | BOLT | BOLT OR<br>9" SPIKE<br>11" " | BOLT OR<br>10" SPIKE<br>12" " |
| 6" | | BOLT | BOLT | BOLT | BOLT | BOLT OR<br>11" SPIKE<br>12" " |

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SMALLER SIZES RECOMMENDED WHERE A RIGID JOINT IS REQUIRED AND IT IS OBJECTIONABLE TO HAVE NAILS PROTRUDE.

**Figure 9. Recommended Nail Sizes.**

Cement-coated nails are recommended for use in fastening the blocks and braces in place. If they are not obtainable, rusted nails are a good substitute as holding ability is increased almost 40% by rusting. Nails must be long enough sufficiently to penetrate the walls, floors, or other bracing. Nails will give ample security when they penetrate fully but do not protrude through the timber holding the point of the nail. Protruding nails will, of course, tend to damage the equipment. If the lading is being loaded into a refrigerator car, other means of fastening blocks and braces must be used, as nailing will damage the insulating prop-

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erties of the car. When nailing into very hard woods, a hole, 75% of the diameter of the nail, must be drilled first to prevent splitting. Nails should also be staggered to avoid splitting, but should not be toe-nailed as this reduces their holding power.

Bolts are recommended when heavy materiel is being blocked and braced. Lag screws are not in favor, as they tend to damage equipment. By referring to Figure 9, the relation of nail sizes to lumber sizes can be determined. Ten penny nails are 3 inches long; 20 penny nails are 4 inches; and 40's are 5 inches.

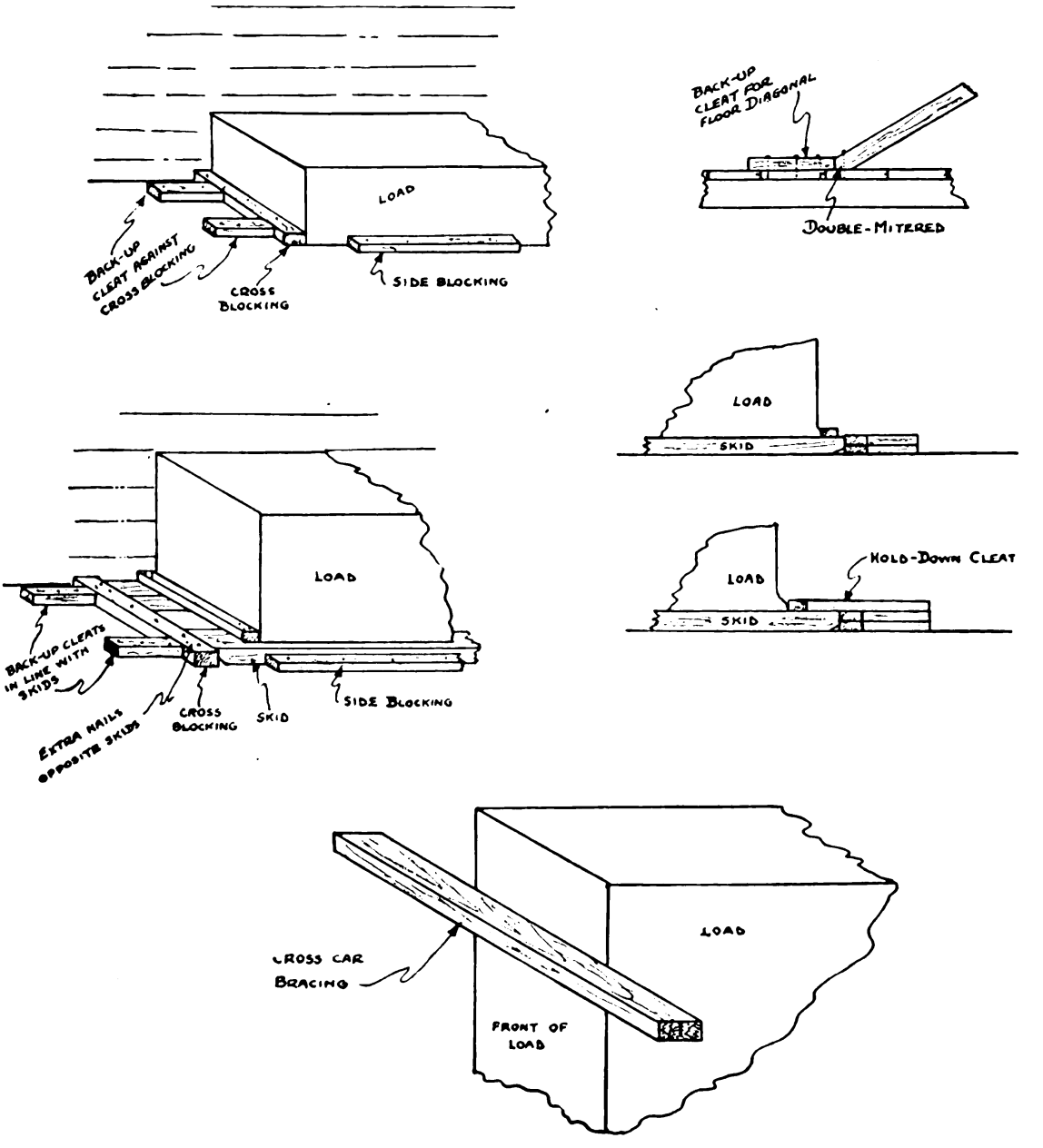



**Figure 10. Types of Blocks, Braces and Cleats.**

All floor blocking must be securely nailed to the floor. If there are any diagonals running from cross bracing to the floor, they must also be securely nailed down, with cleats backing them up. These cleats will never be less than 12 inches in length. Whenever machinery on skids is blocked and braced in a car, back-up cleats of the same thickness as the skids should be used.

All cross bracing should be of such dimensions that it will adequately hold the load. Whenever possible, the cross boards should be set with the narrow face against the load so that maximum strength of the board will be employed. Cross

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bracing may be nailed to the floor, or it may be used above the floor and fastened into the sides of the car. The size of wall cleats to hold bracing will depend upon the type and weight of the load being supported. The center cleat will in all cases be extended so that it can be nailed into an upright stanchion in the car wall.

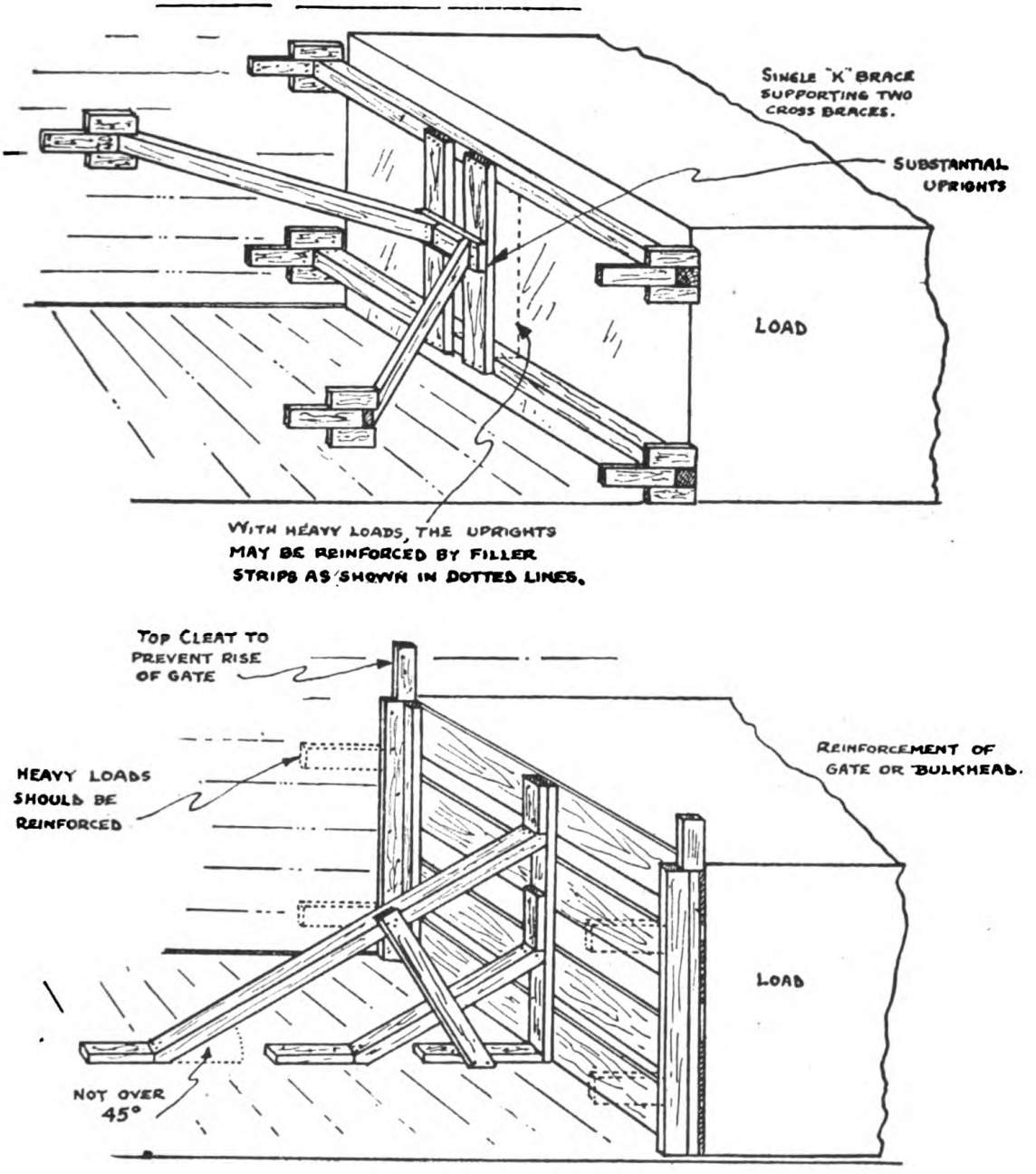



**Figure 11. Full Bracings.**

Cross bracing which holds extremely heavy loads must be reinforced by diagonals running either to the floor or to the car walls. If the diagonals run to the floor, the angle formed by the diagonal and the floor must never exceed 45 degrees. If the diagonal runs to the wall, as in a 'K' brace, the angle formed by the diagonal and the cross brace must never be less than 45 degrees. If these angles are exceeded or diminished, the maximum support of the bracings will be lost. (See Figure 10 for types of blocks and braces).

Bulkheads or gates may be used when the lading is in containers or in bulk. They are, as the name implies, solid, one-piece structures forming a complete wall between commodities. They are used when it is necessary to partition and

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brace separate, like items within the car; their size will depend upon the weight, height, and type of materiel they are holding. Used frequently to reinforce ends of cars, they must be as securely fastened to the car as all the other blocks and braces. It may be necessary to double-face these bulkheads or gates when they are used as partitions between various commodities.

When containers such as barrels, drums, and tubs are stacked two or more in height, fillers should be placed between the layers. These fillers will run the length of the car, being secured to the walls by strips fastened across each end at right angles to them.



**Figure 12. Improper Loading.**

Bracings such as gates, bulkheads, and some types of cross braces can be held down by cleats nailed across their tops. Certain commodities packed in cartons, boxes, and barrels may be properly blocked and braced by metal bands or wire. The two most common types of this method of loading are the floating load and the anchored load; the metal bands used for this method of loading must never be less than 3/4 of an inch in width, .030 of an inch in thickness, or have a tensile strength of less than 2000 pounds. (See Fig. 11 for full bracing examples).

The floating load, as the name implies, is not anchored to the car in any manner; it actually is allowed to float in the car. By allowing the load to shift, any force applied to the load spends itself over a greater distance and through a longer period of time, this lessening the effects of shock. The metal ties holding the load together may be placed around the sides or over the top of the load. As a general rule, bulkheads or gates are placed at each end of the load to prevent damage to its corners, top, or bottom by contact with the metal ties. Quite frequently, skid plates are also used to prevent load shifting; these small metal plates with stamped tongues bite into the floor of the car to arrest movement by their friction.

The anchored load, on the other hand, is attached by metal bands to the car walls. Anchor plates nailed to upright wall stanchions are employed for this pur-

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pose. The stanchions should be placed at least three feet from the face of the load. To prevent shearing of the bands, they must be placed around the load at the same height as their anchor point. When either the floating or anchored load does not occupy the entire width of the car, it must be placed in the center of the car and blocked securely to the floor to prevent side creep.

The importance of proper loading, blocking, and bracing is shown in Figures 12 and 13; both these loads are unstaged examples of poor loading methods.

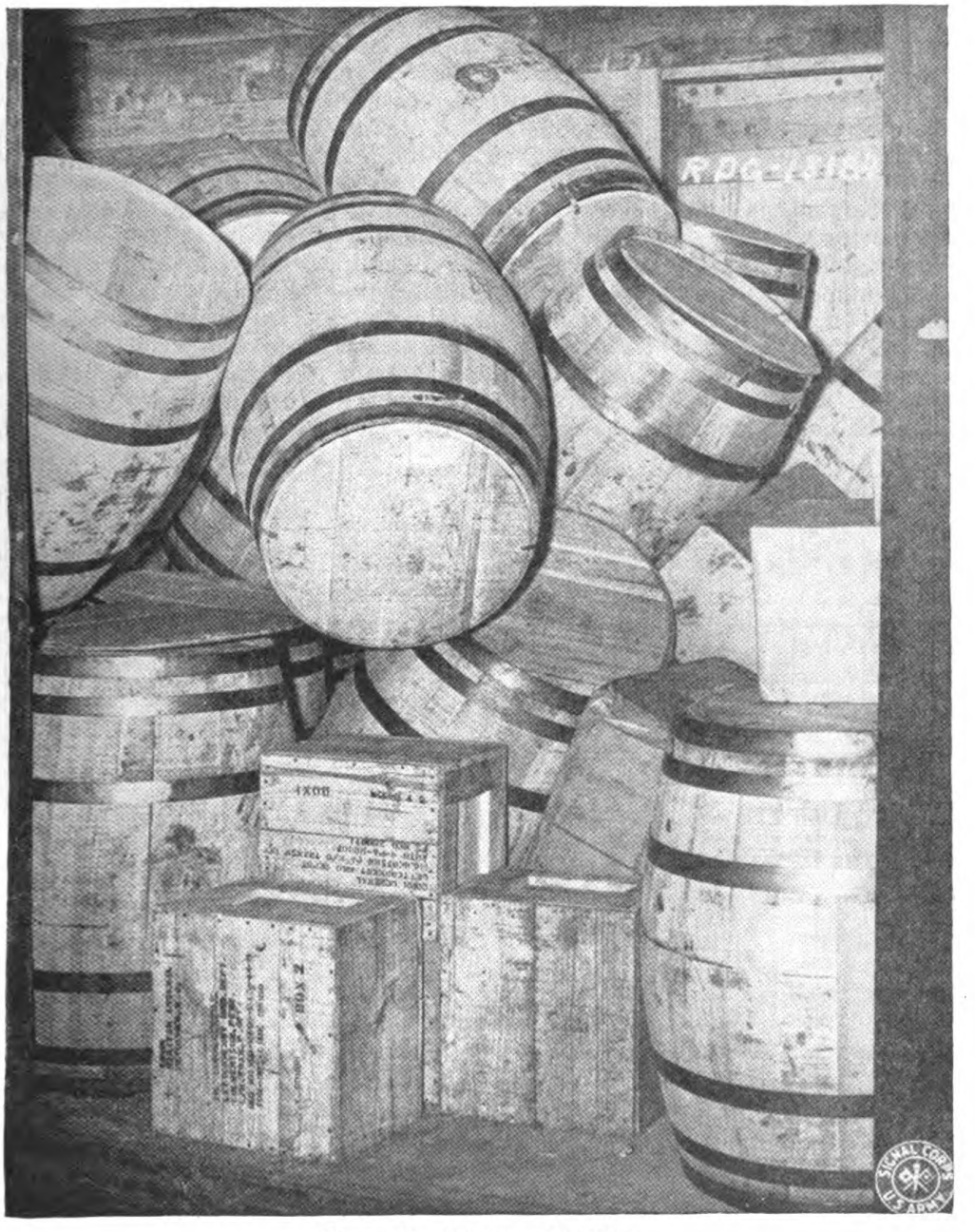


**Figure 13. Improper Loading.**

**Open Cars.** Open type railroad cars, such as flats and gondolas, are loaded according to the principles of closed cars although additional rules have necessarily developed. The loading plan should, of course, include the loading of open as well as closed types of cars. Actual loading of open cars will normally be a responsibility of the transportation officer, assisted by the supply section and the regular unit motor officer.

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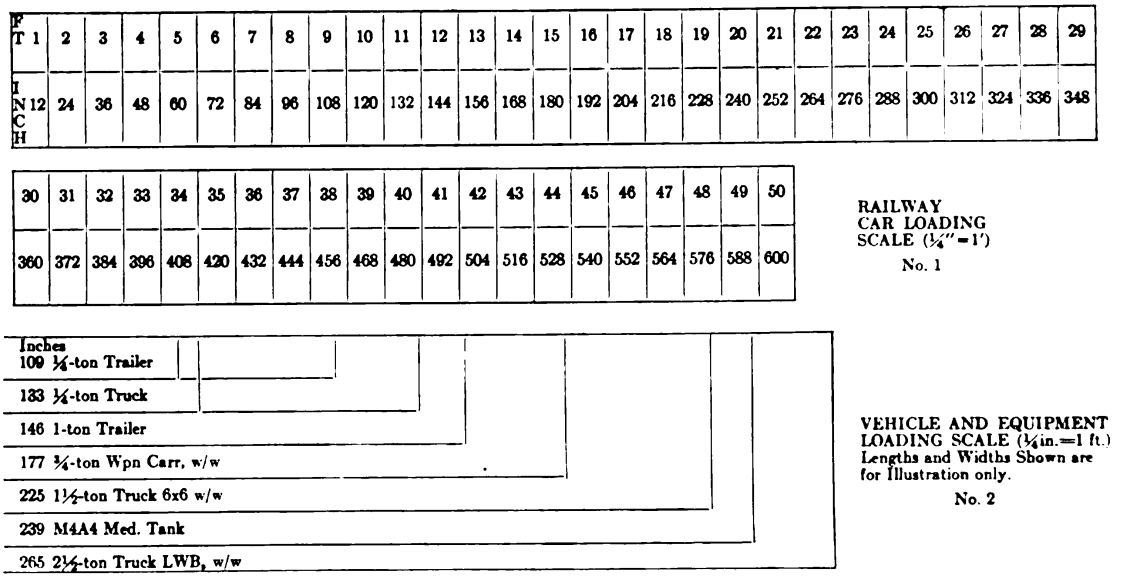
Railroad cars normally used for open car transport are flatcars, and either drop-end or closed-end gondola cars. Both of the latter types are approximately the same size, although flatcars may vary in length from about 30 to 70 feet.

Before loading, inspect the cars to be sure they are in serviceable condition. All faulty floor boards must be repaired; loose or projecting nails must be removed; bolts and nails that are integral parts of the car should be tightened or nailed down.

The maximum load to be placed on any car must be computed before loading actually starts. The capacity, load limit, and the light weight of the car will be stenciled on the side of every car. In order to arrive at the maximum load to be placed on a car, subtract the light weight from the stenciled load limit; the result is the maximum load that can be placed on the car. Weight must be evenly distributed throughout the entire length and width of the car and one truck of the carrying car must not carry more than one half of the load weight.

In loading either flat cars or gondola cars, determine whether the proper unloading facilities are available at the destination. If a crane is required to load a car, there must be means available at the destination to accomplish unioading. Too frequently in the past, closed-end gondola cars have been received at out of the way places where there is no crane to unload them.

When originally drawing up the loading plan, it should be remembered that there is no standard loading order prescribed, but that vehicles should be economically spaced on the cars. One of the simplest methods of space planning is to prepare scaled cutouts of the cars and vehicles that are to be loaded. Then the vehicle cutouts can be fitted to the car sizes available. High-speed railroads with tunnels, electrical conductors, and sharp curves make it imperative that railroad clearances be closely followed. (See Figure 14).




NOTES

1. These scales will assist in determining the number and length of open-top (flat and gondola) railway cars required to accommodate vehicles and equipment.
2. Scale No. 1 represents a 50-foot railway car and is scaled to show feet and inches.
3. Scale No. 2 is constructed on the same basis (¼ inch equals 1 foot) and is specially scaled to indicate the shipping lengths of various types of vehicles and equipment assigned to a given unit.
4. By applying Scale 2 to Scale 1, various combinations may be easily developed which will result in the maximum utilization of railway equipment.

**Figure 14. Railroad Car Loading Scales.**

In the United States all ordnance vehicles may be shipped uncrated. The body of the vehicle may be covered with a canvas covering if one is available. The pneumatic tires on any type of equipment should be inflated from 5 to 10 pounds above normal pressures. All accessories and tools on all types of equipment must be removed. These accessories and tools should be placed in a separate box, either under or inside the vehicle. Before loading either the major item itself or its accessories, both must be treated with a rust preventive compound of the proper specification. All unpainted and exposed surfaces will receive this treatment.

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It is no longer necessary to remove the fuel from the fuel tanks for freight shipment, nor is it necessary to label the tanks under ICC regulations. In fact, it is necessary to see that there are sufficient quantities of fuel and oil in the equipment to make it possible to drive the vehicles off the cars at their destinations. This rule applies only to materiel that is moving by freight; if the shipment is by express, the fuel must be drained.

Radiators and blocks should be drained when there is a possibility of freezing en route. If not drained, sufficient quantities of anti-freeze solution must be added. In either case, the radiators must be tagged that they have either been drained or that the anti-freeze has been added. The battery must be disconnected to prevent its discharge by accident or by vandalism. The vehicle brakes must be applied when the proper position has been attained on the car and the transmission should be placed in low gear.

Vehicles should be located on the car in such manner as to prevent the car from carrying an unbalanced load. When placing the vehicle, the wheels should be placed equally between two stake pockets of the car if this is at all possible. The vehicles or equipment must also be placed on the car with a six-inch clearance in back, on both sides of, and above the brake wheel of the car. This may be accomplished by loading from the brake-wheel end of the car and leaving this six-inch clearance initially.

All rotating parts, such as turrets, must be positively locked and wired in place to prevent rotating in transit. All cars containing ordnance equipment must be placarded "DO NOT HUMP". When placing trailers of any kind on the cars, they must be disconnected from their prime movers, blocked, and braced separately.

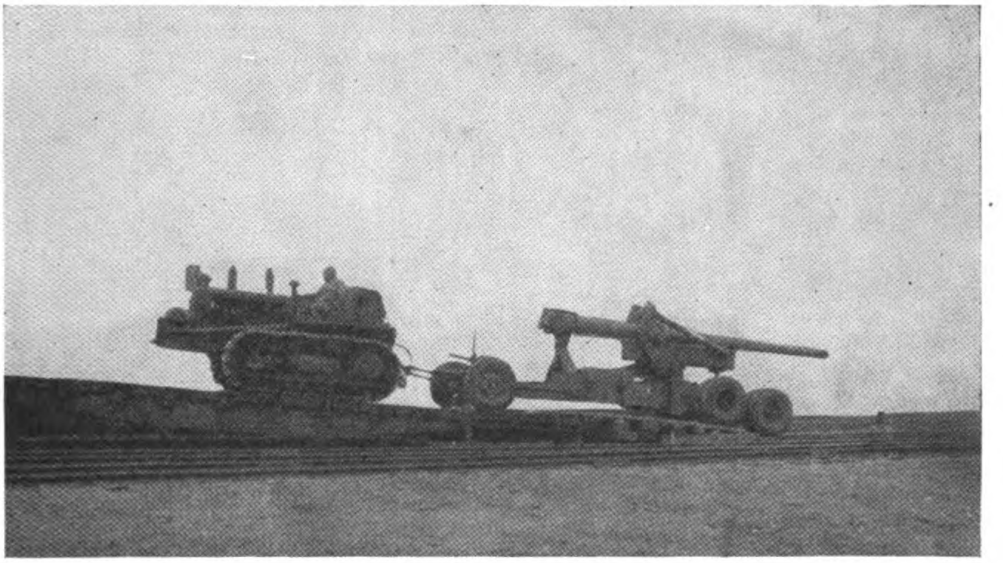


**Figure 15. Improvised Ramp Using Flat Car.**

The physical loading of ordnance equipment on open type cars is easy if a permanent ramp is available. However, as the availability of a ramp is the exception rather than the rule, there are several ways to improvise a ramp. If two heavy jacks are available, one may jack the bed of a flat car up on one end, pull the pintle pin after removing the brake connections on the wheels, and roll the trucks of the car from under the bed. By means of the jacks, the floor of the car is lowered to the tracks and a small runway or crib built to the lowered end of the car. Drive stakes in the ground to prevent shifting of this crib, and the bed of the flat car makes an excellent ramp (See Figure 15). If heavy jacks are not available for removing the truck of the car and lowering the bed, a complete ramp or crib can be built with ties and planks up to the height of the car. This ramp must be sturdy because of the weight of heavy equipment to be driven over it. (See Figure 16).

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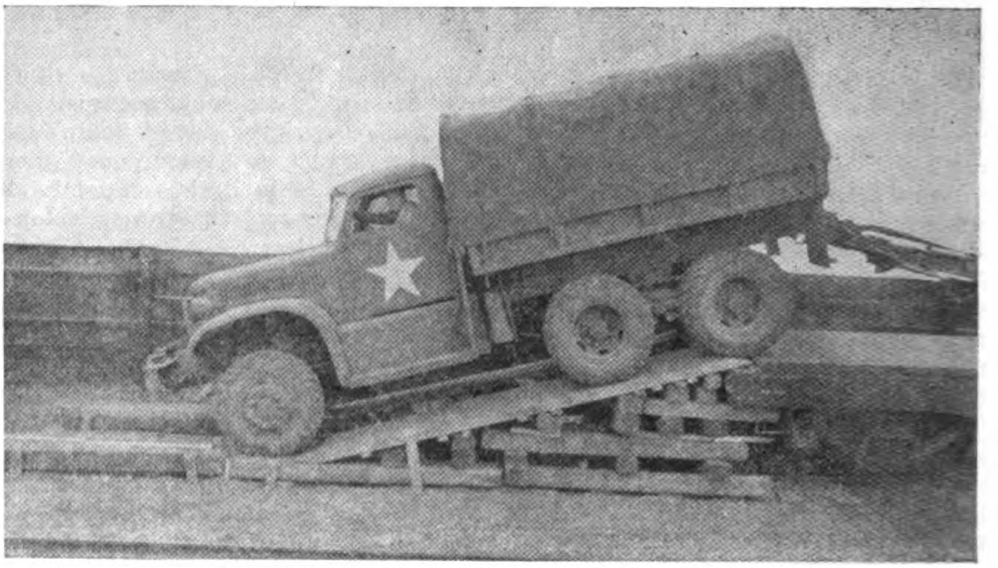


**Figure 16. Improvised Ramp of Planks and Ties.**

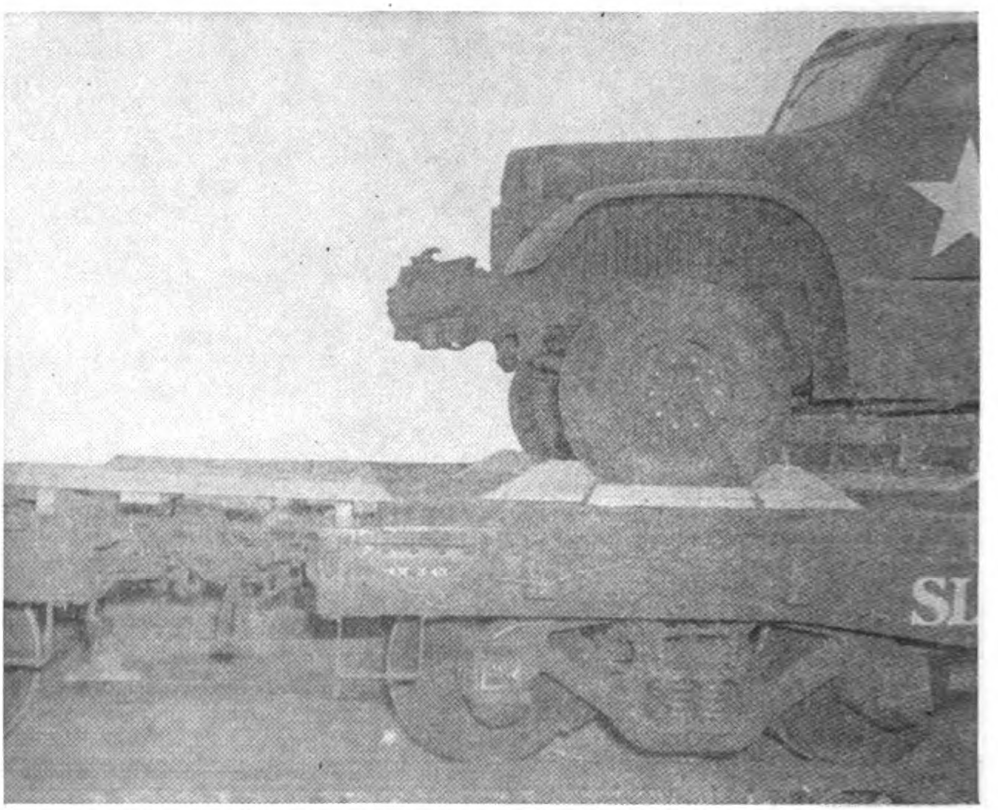


**Figure 17. Spanners and Wheel Blocks.**

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As vehicles and other equipment cannot jump gaps between the cars, it will be necessary to build spanning ramps to bridge them. Spanners must be constructed of heavy timbers, ends of which are beveled so that the sharp edges of the lumber will not damage the rubber tires or treads of the equipment. Do not nail these spanners down as many types of ordnance equipment have varying tread widths and unnailed spanners may be moved in and out to fit them (See Figure 17).

After the equipment has been properly loaded, it must be blocked and braced. The following general rules must be applied to accomplish this mission:

Wheels will be blocked against rolling forward or backward.

Wheels will be blocked against sliding sideward.

Blocks or supports will be placed between the axles of the equipment and the floor of the car.

Wire will be used to anchor the equipment to the car to prevent it from bouncing.

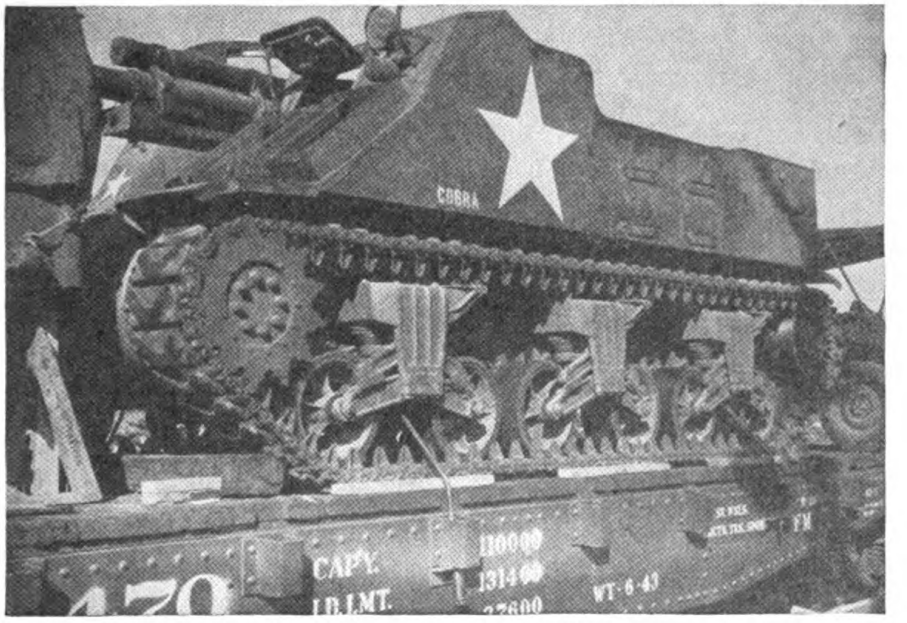



**Figure 18. Full Track Vehicles.**

Prepare the blocks and cleats well in advance of loading. This is easily done as standard patterns normally will accomplish the blocking and bracing of all materiel. Blocks and braces should be made of well-seasoned dry hardwood. If stock lumber is not available, blocks and cleats of rough timber will serve nearly as well. The standard patterns are as follows:

Short cleat .....2" x 4" by approximately 12" in length.
Long cleat .....2" x 4" by approximately 36" in length.
Stake .....4" x 5" by approximately 48" in length.
Wheel Block .....6" x 8" by approximately 24" in length.

The ends of the wheel block are angled in at angles of 45° and 33° respectively. (See Figure 17).

Wheel timber or chamfer block .....6" x 8" with a length to suit the tread width of the equipment to be blocked; a two-inch chamfer is cut at the point of contact of the wheels or tires of the equipment.

Support .....These supports are usually made from 2" x 4" lumber approximately 16" in length; the height, however, should suit the equipment.

Fortypenny nails should be used to nail all blocks and braces to the floor; 8-gage black annealed wire is recommended for wiring. Burlap or other cloth may be placed between the tires and blocks to reduce chafing.

All 4-wheel vehicles, half-tracks, and full track-laying equipment are loaded and secured substantially alike; but the heavier the equipment, the heavier the

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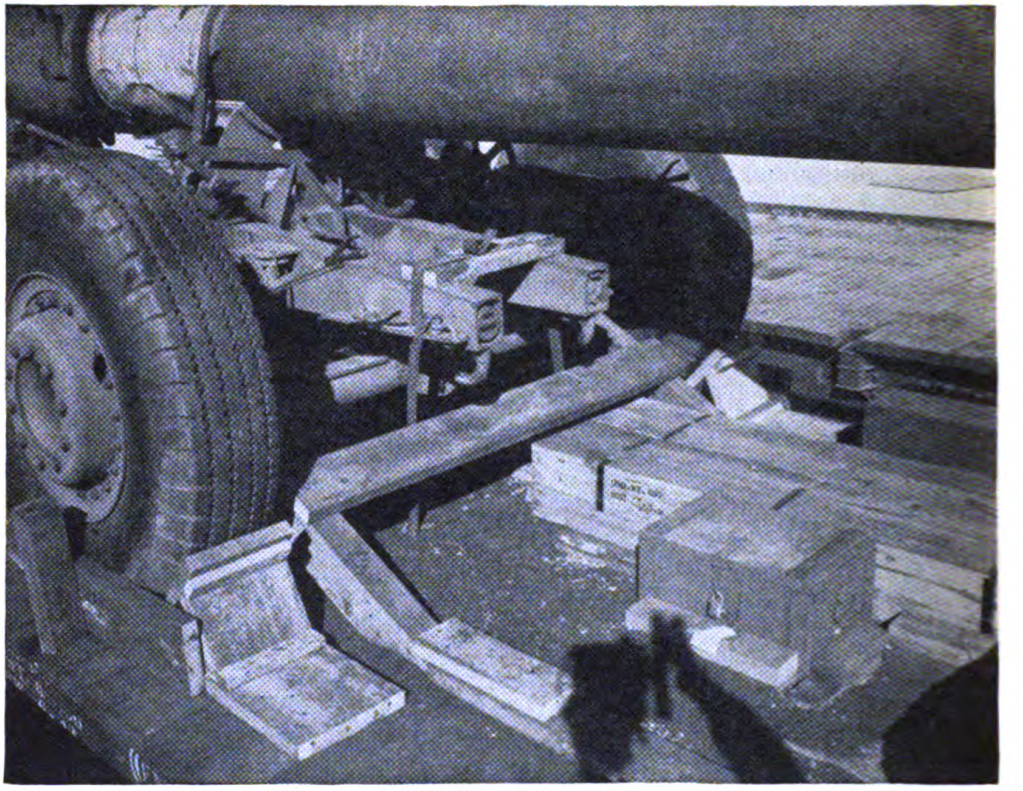


**Figure 19. Wheel Blocking and Placing Vehicle of Unit Tools.**

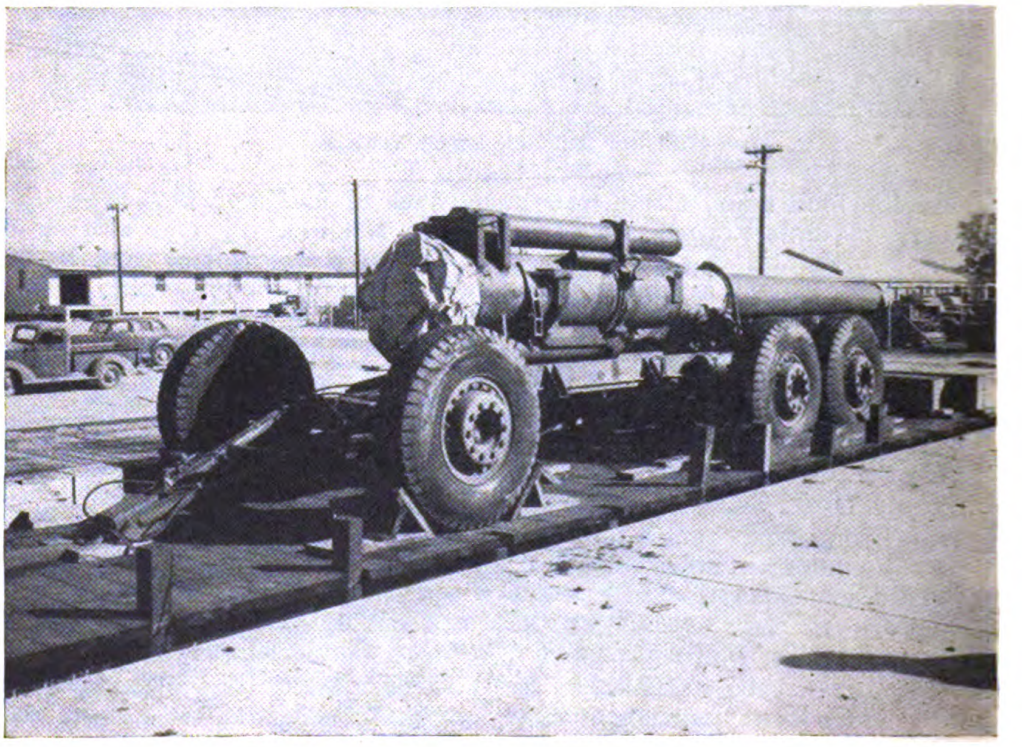


**Figure 20. Preparing Heavy Artillery.**

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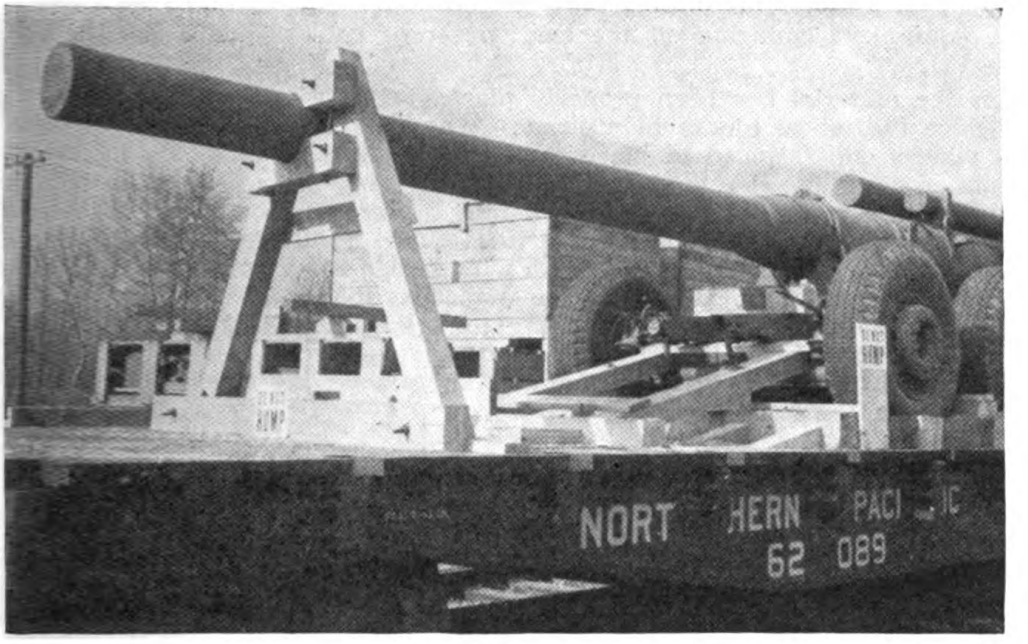



**Figure 21. Details of a Muzzle Bracing, 8" Gun.**

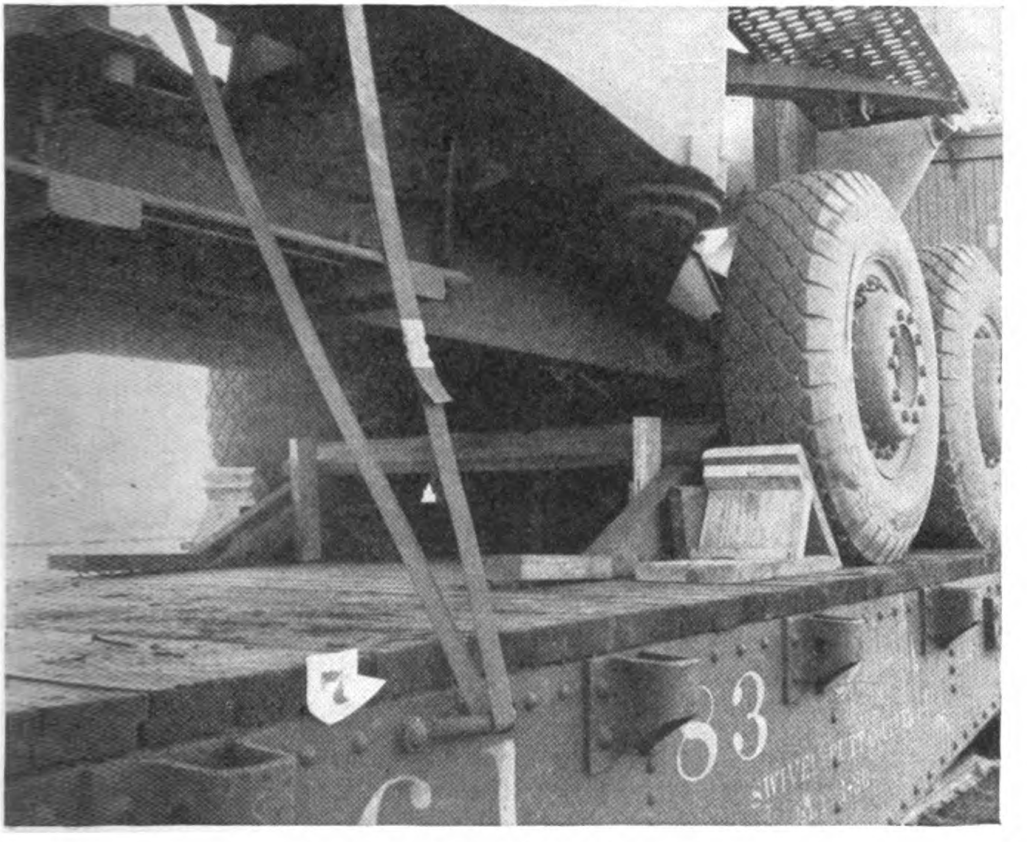



**Figure 22. Use of Metal Strapping.**

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blocks and braces must be. When extremely heavy track-laying equipment is being blocked and braced, effective wiring cannot be accomplished; the weight of the equipment is usually sufficient to keep it from bouncing. If there is a possibility of the equipment bouncing off the car, wire-rope cables should be used. (See Figure 18).

After the materiel has been properly placed and the brakes set, the first step is to place the wheel blocks in position. Wheel blocks are placed fore and aft of all wheels and fastened in place with five fortypenny nails. Long cleats are then placed along the side of each wheel, two of them to a wheel, and each one is nailed down with at least three fortypenny nails. Supports are put in place between the axle and floor of the car to take the vehicle weight off the wheel bearings. The vehicle is then wired down with 8-gage black annealed wire, running from a forward stake pocket to a spoke high and toward the rear of the wheel; and, from a rear stake pocket, running to a spoke high and forward on the wheel. Four strands of this wire are twisted together to make one piece. A ratch stick is then used to twist the wire to remove the slack but not enough to cause tension on the wire.

Wheel timbers or chamfer blocks are an alternate method of blocking the wheels or tracks. This method is used when the tools to cut the angles on the wheel blocks are not available. The chamfer block method is much easier to use but consumes a great deal more board feet of lumber. Blocks are placed fore and aft of all wheels so that the tires fit into the two inch chamfer cut in the timbers. These blocks are then backed up by short cleats nailed to the floor. One cleat is placed on top, another immediately behind and in front of each wheel. The blocks and cleats are again nailed down with fortypenny nails. One long

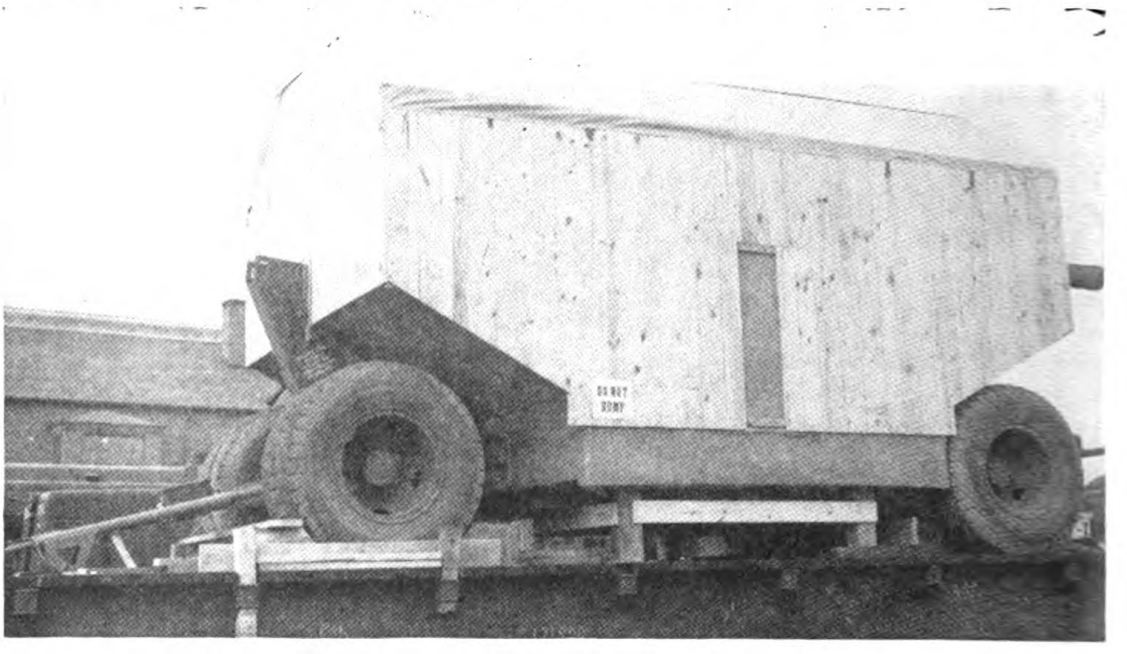


**Figure 23. Fully Prepared 120-mm AA Gun.**

cleat is then nailed across the tops of the blocks just on the outside of each wheel. Wiring is accomplished as before.

(See Figure 19 for wheel blocking on heavy items. Figures 20 and 21 show further bracing of heavy equipment).

Trailers that have been disconnected from their prime movers may either be blocked up to their normal towed height by under supports, or the trail and/or drawbar may be lowered to the floor. The wheels of such equipment are blocked and braced as previously outlined. However, if the trails are lowered to the floor, they must also be blocked and braced.

Rope may be used in place of wire if necessary. The rope must be padded with burlap or other cloth wherever it comes in contact with metal; if this per-

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caution is not taken, the metal will cut through the rope. Metal strapping may also be used; see Figure 22.

If the equipment is so wide that stake pocket wiring is impossible, the wire may be run to a 2" x 4" board, wrapped around the board several times, and the board nailed to the floor. This will be as effective as stake pocket wiring. On some types of equipment, it will not be possible to run the wire through the wheel spokes because of disk wheels; in this case, the wire should be attached to the frame of the vehicle.

For an example of a fully prepared 120 mm AA Gun, see Figure 23.

In closing, frequent and thorough inspections must be made while the shipment is being transported. All blocks and braces that become loose must be replaced, and any slack wiring or roping must be tightened or replaced. These procedures are minimum requirements but will pass a railroad inspection. Before releasing any shipment, inspect it with railroad officials.

## PREPARATION OF INDIVIDUAL REPLACEMENTS

From now until the conclusion of the war, most Army personnel will move overseas as individuals instead of as members of units.

The commanding generals of the major commands (AGF, AAF, and ASF) are responsible for furnishing replacements to overseas forces from their personnel. These replacements are made available as required by the War Department. The War Department authorizes personnel depots, not only in the Zone of the Interior, but in certain overseas theaters for the efficient handling of these replacements.

Normally, replacements are sent from replacement depots in the Zone of the Interior to replacement depots overseas. In some cases, of course, replacements may not be processed by either depot. That is, they may move from home station directly to port and overseas. Or, they may move directly to a unit overseas without passing through an overseas replacement depot.

The specific responsibility of the War Department is carried out by the Director, Military Personnel Division, Army Service Forces. He will promulgate the necessary instructions and information to the theaters overseas as well as the three major commands within the United States. He will instruct the major commands of individual replacement requirements, which will move under orders issued by their particular major command.

Shipments are made to meet requirements of estimates submitted monthly by theaters of operations. Full information on the preparation of estimates, reports and requisitions for replacement personnel may be found in Circular 317, "Oversea Replacement System," dated 31 July 1944, or the latest revision of this circular.

**Present Policies.** General policies of the War Department at the present time are as follows:

(1) Officers will be requested by arm or service and the number required. They will not be requested by name and officers normally will be furnished in the lowest grade. Field officers are sent only upon specific request from overseas.

(2) Warrant Officers will be requisitioned by the desired classification. Normally, warrant officers, junior grade, will be furnished as replacements. However, when necessary, chief warrant officers may be furnished not to exceed 40 per cent of the total number of warrant officers on any requisition.

(3) Enlisted personnel will normally be requisitioned by arm or service and the number required without regard to MOS numbers. If a theater overseas does not have a rate table to fix its replacement requirements, however, MOS numbers will be used.

(4) Normally, not over 10 per cent of the enlisted replacements may be noncommissioned officers. The latest revisions, however, of Circular 317 should be consulted for the application of this rule to the various arms and services. Other enlisted personnel will be furnished in grade 6.

As a general rule, replacement depots are prohibited from keeping personnel intended for replacement purposes within their depots for more than 30 duty days. They may, under no circumstances, be kept for more than 45 duty days. Further, they may not be used for purposes other than overseas replacement, being unavailable for reassignment within the continental limits of the United States.

**Receipt of Orders.** Movement orders will be received by individuals at their

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last, or home station, under appropriate security classification. When individuals will directly report to ports of embarkation, their preparation is to be performed at their home station. Otherwise, they will be prepared for movement overseas by the replacement depot to which they will normally be ordered. We will now see what happens to an individual under orders for such movement.

Upon receipt of the movement orders, replacements will be advised of the content and meaning of the last clause of Article of War 28 (see Section I). Any person absenting himself without leave to avoid shipment either to a replacement depot, staging area, or port, is avoiding hazardous duty or shirking important military service which will render him a deserter.

Personnel ordered to foreign duty, before leaving home stations, should be furnished a detailed check list for completion. If the procedure outlined in the check list is followed and the requirements given hereafter are completed, military persons arriving at oversea destinations will have no difficulty in becoming established at their new stations.

**Training.** An officer will not be transferred to depots or ports until he has completed a full qualification course in marksmanship in any one of the following weapons: rifle, carbine, pistol, or submachine gun. He must also have completed familiarization firing with the weapon with which he is armed.

Enlisted personnel must have completed the individual training required by their Mobilization Training Program, or an Army Air Forces Training Standard for his or her arm or service. Training will include the completion of a qualification course in marksmanship with any of the above weapons and familiarization firing of the type weapon with which he is armed.

In the Army Service Forces, enlisted personnel will be certified as to the completion of basic training by the transferring agency. If a man refuses to fire a qualification course, such refusal will be entered in his service record under "Remarks-Administrative" but this refusal will not prevent overseas shipment. Personnel who are not required to be armed (such as chaplains, medical personnel, and WACS) will, of course, not be required to fire.

All other training requirements must be met before personnel are cleared from their home stations, since training is not a function of either the replacement depot or the port of embarkation.

**Security.** All appropriate security information is given under this heading in Section I of this chapter.

It should, however, be repeated that no automobiles, dependents, relatives, friends, or pets will accompany individuals ordered to a replacement depot or a port of embarkation for movement overseas. Personnel will be unable to visit or see relatives or friends at the port. At the present time, cameras may be taken overseas subject to any restrictions imposed by the commander of the port, ship, theater, or other area concerned. (See AR 380-5)

**Leaves and Furlough.** AR 605-115 and AR 615-275 as well as other War Department and major force instructions, will be followed concerning leaves and furloughs. None will be granted, however, after arrival at a port of embarkation except in cases of emergency. Such, of course, are kept at an absolute minimum.

**Identification.** Individuals moving to an overseas destination will always have in their possession identification cards as required by War Department Circular No. 82, 1944. Prior to leaving the home station, these cards must be checked, as well as all other identification cards and drivers licenses, to insure that they do not disclose any organizational assignment or designation either of the bearer or the officer who countersigned or approved the document. As well, all divisional and unit designations and insignia will be removed from all classes of individual clothing, baggage, and equipment. Shoulder patches are included, although the technical specialists sleeve insignia (AAF) need not be removed.

**Medical Requirements.** Prior to departure of individuals from their home stations, physical examinations and medical requirements must be accomplished. No physical examinations to determine eligibility for overseas service will be made at any other point as those examinations given at the port are only intended to detect infectious or contagious diseases. The latest requirements on physical examinations and the recording of the results thereof should be consulted and complied with by all concerned in any overseas movements. The current regula-

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tions are War Department Circular No. 102, 1944 (Officers) and War Department Circular No. 164, 1944 (Enlisted men).

All personnel must be found mentally and physically qualified for service in an overseas combat theater.

All personnel will be physically inspected as required by paragraph 11, AR 40-100 and paragraph 5, AR 615-250.

Records of immunization (with dates) must be completed and the necessary information embossed on the individual identification tags. Vaccinations will be entered on Service Record of enlisted men and on officers' Immunization Registers (WD, MD Form 81). Officers will carry their Immunization Record or a true copy on their person.

Present requirements of the AGF and ASF are as follows:

1. Small pox vaccinations and inoculations for typhoid and paratyphoid fever must be renewed unless they have been completed within the previous twelve months.

2. Immunization with tetanus toxoid must be completed and a stimulating dose of tetanus toxoid (1cc) administered prior to departure unless the departure is within six months from the date of completion of either the original three injections or one of the annual stimulating doses.

3. Inoculations against typhus fever, cholera, yellow fever, or any other special immunization will be required only when directed in movement orders. They will normally be accomplished at the port of embarkation unless otherwise directed.

Army Air Forces personnel will be immunized for the following: Small pox, typhoid, tetanus, yellow fever, cholera, and typhus. Records of these immunizations will be made upon individual Immunization Registers (WD, MD Form 81).

Personnel *should* be provided with two serviceable pairs of eye glasses to be carried on their person. The lack of a second pair of glasses, however, will not be sufficient to prevent an individual from moving overseas. Every effort will be made to secure gas mask glasses, M-1, prior to movement overseas for those personnel who require them. Data concerning glasses will be recorded on the personnel records of the individuals; each individual concerned should have a prescription for his glasses on his person to enable replacement of lost or broken spectacles. This is required by War Department Circular No. 55, 1944.

All dental treatment necessary will be provided military personnel before their departure for overseas.

When necessary, the syphilis register will accompany personnel overseas.

**Personal Affairs.** The commander who prepares individuals for movement overseas will perform the following:

1. Notify enlisted personnel that they are designated for overseas service and that they will receive an increase in pay.

2. Instruct personnel to arrange their personal affairs. The current War Department publication on this subject is War Department pamphlet 21-5, "Personal Affairs of Military Personnel and Aid to Their Dependents"; this publication may be secured from the camp, post or station distribution section or an Adjutant General Depot. Whenever possible, a copy should be given to the principle dependents of the individual moving.

3. Invite attention of all personnel to the desirability of making allotments of pay for dependents, life insurance premiums, and the purchase of war bonds. If an individual refuses to make any allotment, a statement to that effect will be made on the reverse of WD, AGO Form 43.

4. Explain fully the provisions of the National Service Life Insurance Act of 1940 as set forth in War Department Circular No. 7, 1942.

5. Provide extract copies of movement orders without classification so that personnel having dependents and household goods to be moved at government expense will be equipped with the necessary copies of their orders (See AR 55-160). Dependents must have a necessary power of attorney to sign the requests and vouchers for accomplishment of the movement desired.

6. Explain the benefits of the Serviceman Dependents Allowance Act of 1942 (See AR 35-5540).

Personal affairs have frequently been neglected. Many ports report that personnel have not made provisions to meet all of their personal affairs. Failure of

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an individual to make adequate provision for the settlement of his affairs is a reflection upon his efficiency as a member of the Army.

Dependents should be notified that, in case of need, they should consult the personal affairs officer nearest them. These officers are located at each camp, post, station, and service command headquarters. They are prepared to give legal advice, banking information as well as allotment and insurance assistance.

The Army Emergency Relief organization should be explained to dependents as well as the American Red Cross. Dependents should be given all possible information that will aid them during the period when the individual is overseas.

**Personnel Not to be Sent to Depots or Ports.** 1. Officers who have had less than three months of active commissioned service immediately prior to designation for shipment overseas as replacements, unless specifically authorized by the War Department. Commanders should select officers for overseas replacement who have had a rating of "Very Satisfactory" or better in the performance of the duties for which they are selected and only those officers who have had a minimum of three months command experience.

2. Applicants for Office Candidate Schools who have been selected to attend specific classes at an Officer Candidate School. Applicants who have not been finally selected for OCS will move overseas on schedule; their applications will be automatically terminated upon receipt of orders for transfer to the replacement depot or port of embarkation. Orders transferring individuals to Officer Candidate School after arrival at the depot or port will not be honored.

3. Officers recommended for reclassification, but who have not yet been transferred to reclassification centers.

4. Officers who have been recommended for relief from active duty, as well as those officers who have already requested relief and whose requests have been forwarded approved.

5. Enlisted personnel who have applied for discharge under the provisions of War Department Circular No. 117, 1944 (over age 38) and whose applications have *not* been disapproved.

6. Enlisted personnel whose discharge is determined to be warranted. (See AR 615-350 and War Department Circular 40, 1944).

7. Enlisted personnel who have been notified by the War Department, Navy Department, or Coast Guard Headquarters of their nomination as a candidate for appointment to the academies of these services.

8. Personnel who are unable to speak or understand the English language.

9. Personnel requiring hospitalization.

10. Personnel under investigation for subversion or disaffection.

11. Personnel awaiting trial by General or Special Courts-Martial.

**Individual Clothing and Equipment (See Figure 24).** All clothing and equipment of individuals moving overseas will be serviceable for operation in the combat zone. Officers will secure clothing and equipment, as required in the movement orders, prior to leaving their home station. Enlisted men, prior to departure from their home station for a depot, will be furnished with the clothing and equipment required by the commanding general of the major command of which they are members. Enlisted personnel, prior to departure for a port, will be furnished as prescribed by the movement order. Any special clothing will be issued at the port of embarkation. Special attention should be paid to the combat serviceability of field jackets.

All personnel moving by air will be clothed and equipped in accordance with the itemized baggage list cited in the movement orders.

The following references should be consulted:

Section 2, War Department Circular No. 250, 1943.
Section 1, War Department Circular No. 253, 1943 as amended.
Section 1, War Department Circular No. 10, 1944, as amended.
Changes No. 5, AR 615-40.
Section 5, War Department Circular No. 121, 1944.

**Baggage.** Individuals will pack their clothing and equipment in two groups. One group will remain with them and the other will not be available during the voyage, being stored in the hold of the vessel.

Officers, warrant officers, port officers, army nurses and others of officer status

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will be limited to the following, not to exceed 175 pounds (additional 55 pounds of flying clothing and equipment is authorized for rated flying personnel traveling by water):

1 trunk locker, or one duffel bag if trunk locker is not authorized.
1 bedding roll when authorized (not over 50 pounds).
1 piece of hand luggage (not over 40 pounds).
1 field or musette bag.
1 A-3 bag or flying bag for flying equipment for rated flying personnel only.

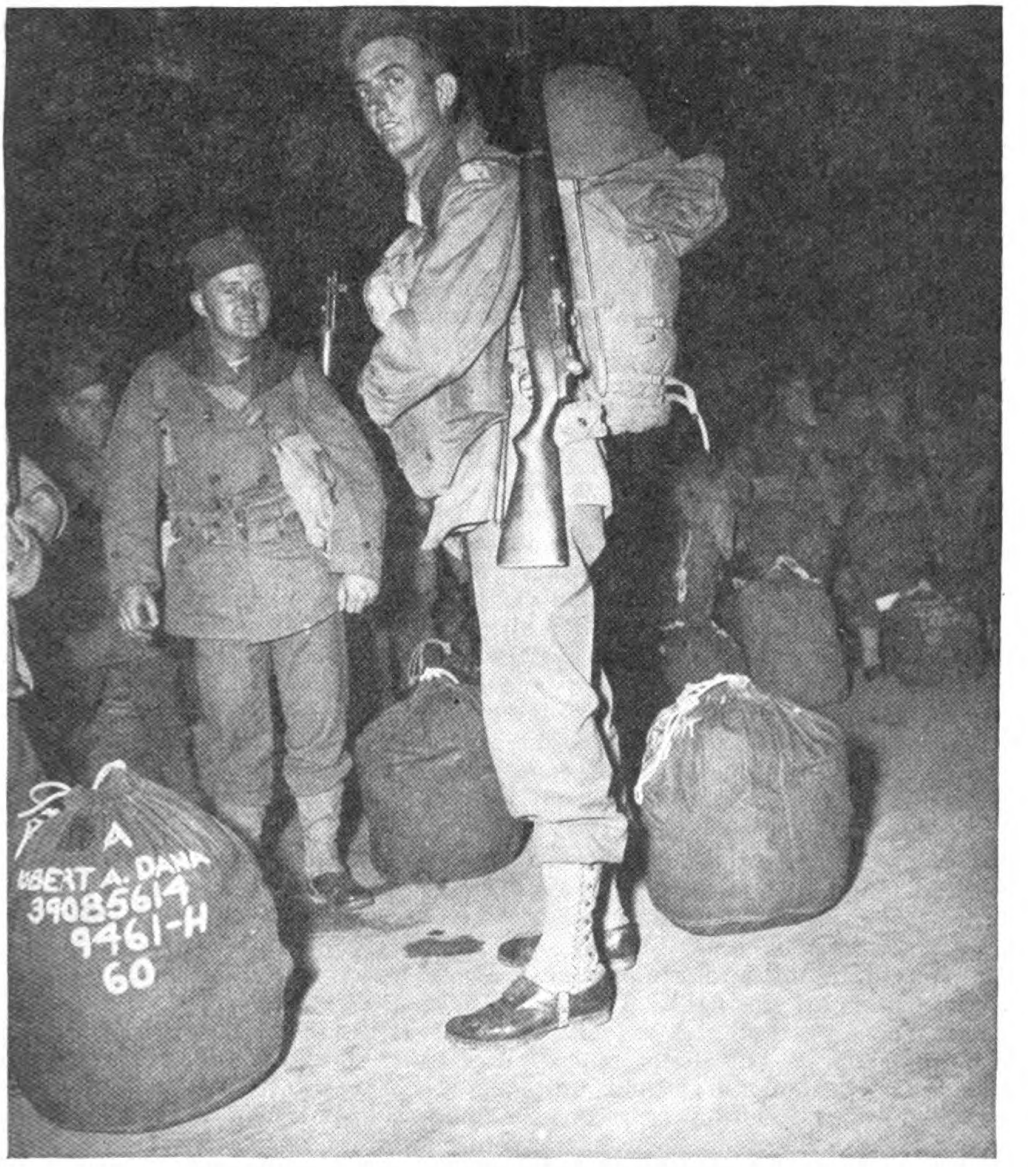



**Figure 24. Individual Clothing and Equipment.**

General officers will be allowed one additional trunk locker or a wardrobe trunk in place of the two.

Officers may have only one piece of hand baggage and a field bag in their staterooms. As a general rule, bedding rolls, trunk lockers and/or duffel bags will not be accessible during the trip, as mentioned before, and therefore should contain no articles or equipment to be needed during the voyage. Chaplains may carry with them in their stateroom religious gear necessary, composed of either mass kits or communion sets. For other information on this subject, see Section 1, "Baggage".

**Non-Citizens.** The latest information on non-citizens may be obtained from the current issue of POR (Preparation for Overseas Movement Of Individual Replacements) issued by the War Department.

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**Personnel Records.** Personnel records of all personnel moving overseas must be checked for completeness and brought up to date prior to shipment from the home station. These records will be carried by hand and accompany the individuals to either the replacement depot or the port of embarkation. Records of individuals who are authorized a delay enroute will be sent directly to the depot or port.

Form 20's for enlisted men and 720 for WACs will be brought completely up to date with care taken to assure that all the appropriate entries are made under "Classification and Military Specialties" and "Record of Service". Firing of weapons, infiltration course, and malaria control training are frequently improperly entered or are not entered at all; this situation should be corrected.

**Processing at Replacement Depots.** It is the present policy of the War Department to form replacements into detachments under officers for transportation overseas. This system has been found to increase administrative efficiency. Shipments of less than 200 personnel will be organized as a single casual company or squadron. Shipments consisting of more than 200 replacements will be organized into one or more casual companies with approximately 200 replacements in each. Officers and noncommissioned officer replacements will be assigned to these casual companies, normally with one officer per each 100 men or major fraction thereof and noncommissioned officers and acting noncommissioned officers as necessary. The companies will continue under the command and supervision of these officers and noncoms until their arrival at their oversea destination.

Escort and supervisor officers, not to be confused with replacements, are generally assigned over the companies to further efficiency and administration. These officers are assigned on a strength basis with one captain per 200 to 500 enlisted men and field officers per 500 to 1500 enlisted men. In the latter case, a captain is assigned on the basis of one per 500 men or major fraction thereof. Field officers or captains as necessary are also assigned for from 50 to 100 officers. One field officer and captain are assigned for officers numbering over 100.

The escort and supervisor officers are responsible for the proper processing, administration, and general supervision of the personnel until delivery at the overseas destination. They will then be relieved from their assignment and returned to the United States where they become available for the escort and supervision of subsequent shipments.

In general, individuals will have their time fully occupied by their duties at the replacement depot. There will be little time, if any, for personal matters, which further shows the need of completing all personal affairs before leaving the home station.

## MOVEMENTS BY MOTOR

The troop movement data shown in the following basic tables of road spaces, rates, and lengths of marches are averages from field experience, and may thus vary for special units. The examples of road spaces and troop movements by motor transport for various types of divisions are based on Table of Organization and Equipment strengths and are included as guides for the preparation of similar tables for units in the field. Tables for field use must conform to the strength variations of units and the amounts of transportation and equipment available. Regiments, separate battalions, and similiar units should maintain tables showing road space requirements of their units based on actual strength and materiel on hand. Reports of subordinate units form the basis for tables of large units. However, a table based on actual strength of men and materiel may be worthless without proper evaluation of the weather, road conditions, hostile or mechanized threats, or other variable factors affecting the troop movement. These basic figures are capable of great increase or decrease under extremes of the variable factors.

**Vehicle Capacities and Loading.** The capacity of motor transportation for movement of foot troops depends upon the rated capacity of the transportation employed, the type of body on the vehicles, and the method of carry personnel. Normal capacities for trucks carrying personnel with rifles, packs, extra ammunition, and no additional cargo are below:

| **Vehicle (excluding driver in each case)** | **Men** |
|---|---|
| Trucks, ¼-ton | 3 |
| ½-ton | 5 |
| ¾-ton | 8 |
| 1½-ton | 15 |
| 2½-ton | 25 |

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When 2½-ton dump trucks or 2½-ton short wheel base artillery trucks carry the loads shown above, some personnel will be required to stand.

With troops properly disposed at the loading site, average time required to load and unload personnel and their individual equipment is shown below:

Note that well-trained troops, properly organized and prepared, can load and unload in half these times under good conditions:

| | *Average time required* |
|---|---|
| To load | 15 minutes |
| To unload | 10 minutes |

| **Motor Elements (at halt)** | **Yards** |
|---|---|
| Motorcycles, solo or w/SC | 5.0 |
| Passenger cars | 7.0 |
| Trucks: ¼-ton | 5.0 |
| ¼-ton w/cargo Tlr or Wpn in Tow | 8.0 |
| ½ to ¾-ton | 7.0 |
| ½ to ¾-ton w/cargo Tlr or Wpn in Tow | 12.0 |
| 1½ to 2½-ton incl | 10.0 |
| 1½ to 2½-ton w/cargo Tlr or Wpn in Tow | 14.0 |
| Over 2½-ton | 13.0 |
| Over 2½-ton w/cargo Tlr or Wpn in Tow | 20.0 |
| Average per vehicle for a mixed column of various types | 10.0 |

The following rates and lengths of motor elements are based upon modern vehicles, trained personnel, and favorable conditions of roads and weather:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Unit | Average rates of march (MPH) | | | | Lengths of March (average) | Remarks |
| | On roads | | Across Country | | On roads (miles per day) | |
| | Day | Night | Day | Night | | |
| Cars, armored or scout | 35 | 35 (lights)<br>10 (no lights) | 10 | 5 | 200 | |
| ARMORED | | | | | | |
| Tanks Light | 25 | 25 (lights)<br>10 (no lights) | 15 | 5 | 150 | Armored division moves at rate of march of medium tanks |
| Tanks Medium | 17 | 17 (lights)<br>10 (no lights) | 12 | 5 | 150 | |
| Trks, Ambs, Mtz units (except Hv Arty) | 25 | 25 (lights)<br>10 (no lights) | 8 | 5 | 175 | |
| Cars, passenger | 35 | 35 (lights)<br>10 (no lights) | 8 | 5 | 250 | |

The rate of march of a column composed of elements with different rates of march is regulated by that of the slowest element. Greater distances than those given in column 6 may be covered under forced march conditions. Rates shown apply primarily to movement in close column, and may be increased for small commands under favorable conditions. For movement over mountainous terrain, an additional allowance of one hour should be made for each 1,000 feet of climb. Average rates of march for motorized elements in Cols. 2 and 3 (above) are possible only on improved roads.

Efficient utilization of road space can be obtained in practice by operating a column in small serials. A traffic flow of 3,000 vehicles in one direction during daylight hours, considering halts and the headways between small serials, is a practical maximum for a two-lane highway with a well-organized system of traffic control. On lower type roads and with varying conditions of road construction, maintenance, traffic control, road alignment, and weather, the workable capacity will be much lower.



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A specific field unit should conduct time and space studies continuously to arrive at a suitable factor reflecting its proficiency in motor movement. This study may result in (1) a basic factor, to which allowance for time-distance between march units and serials must be *added,* or (2) a basic factor already including allowance for time-distance between march units and serials.

The density of a motor column is expressed as the average number of vehicles per mile. Motor columns may be classified as either (1) close column, (2) open column, or (3) infiltration.

In close column, each vehicle is closed up to safe driving distance behind the preceding vehicle. Usually, a fixed speedometer multiplier (SM) is specified. (such as 2, 2.35, 2.5, 3, etc.) to accomplish a safe, intervehicular distance at all speeds.

In open column, distances between vehicles are increased to accomplish greater dispersion. Usually a fixed density is specified. Such as 10, 15, or 20 vehicles per mile, but open column conditions may be obtained by designating a fixed speedometer multiplier high enough to insure the desired intervehicular distance at the lowest speed expected.

In infiltration, vehicles are dispatched at irregular intervals with a fixed density, such as 3, 4, 5, or 6 vehicles per mile.

The road space occupied by a motor column may be obtained by dividing the number of vehicles in the column, (disregarding trailers, by the average density (number of vehicles per mile).

Figure 25 shows the average road space under ideal conditions and does not include allowances for intervals between march units. Actual road space may vary somewhat depending upon conditions.

To use Figure 25:

Determine the number of vehicles in the column, disregarding trailers or towed weapons.

Locate this figure in vertical scale on left of chart.

Follow the horizontal line to right to intersection with diagonal line indicating the proper rate of travel, and the type of march column desired.

From this intersection, follow vertical line down to horizontal scale.

Read on horizontal scale the average road space of the column.

The time-length of motor columns may be obtained by multiplying the number of vehicles in the column by the average intervehicular headway (interval of time between heads of vehicles as they pass a given point) of the column. Thus, a column composed of 300 vehicles, having an average intervehicular headway of 0.20 minutes (12 second per vehicle), would have a time length of 300 x 0.20 or 60 minutes at 300 vehicles per hour.

For purposes of calculation in close column, a value of 0.08 minutes intervehicular headway may be used for vehicles moving in close column with a SM of 2.35. Thus, a continuous column of 300 vehicles would have a time-length of 300 x 0.08 or 24 minutes (750 vehicles per hour). This volume of 750 vehicles per hour applied only to a given serial or column of vehicles and does not include time interval between march units. It can not be multiplied by number of hours to obtain a daily traffic volume.

Time-length of a motor movement in open column or infiltration may be obtained by the following formula:

$$\frac{\text{Number of motor vehicles in column}}{\text{Density (vehicles per mile) x rate of march (mph)}} = \text{Time-length in hours. (Or length of time to pass a given point.)}$$

Figure 26 shows average time-lengths under ideal conditions and does not include allowances for intervals between march units. Actual time-lengths may vary somewhat depending upon conditions.

To use Figure 26:

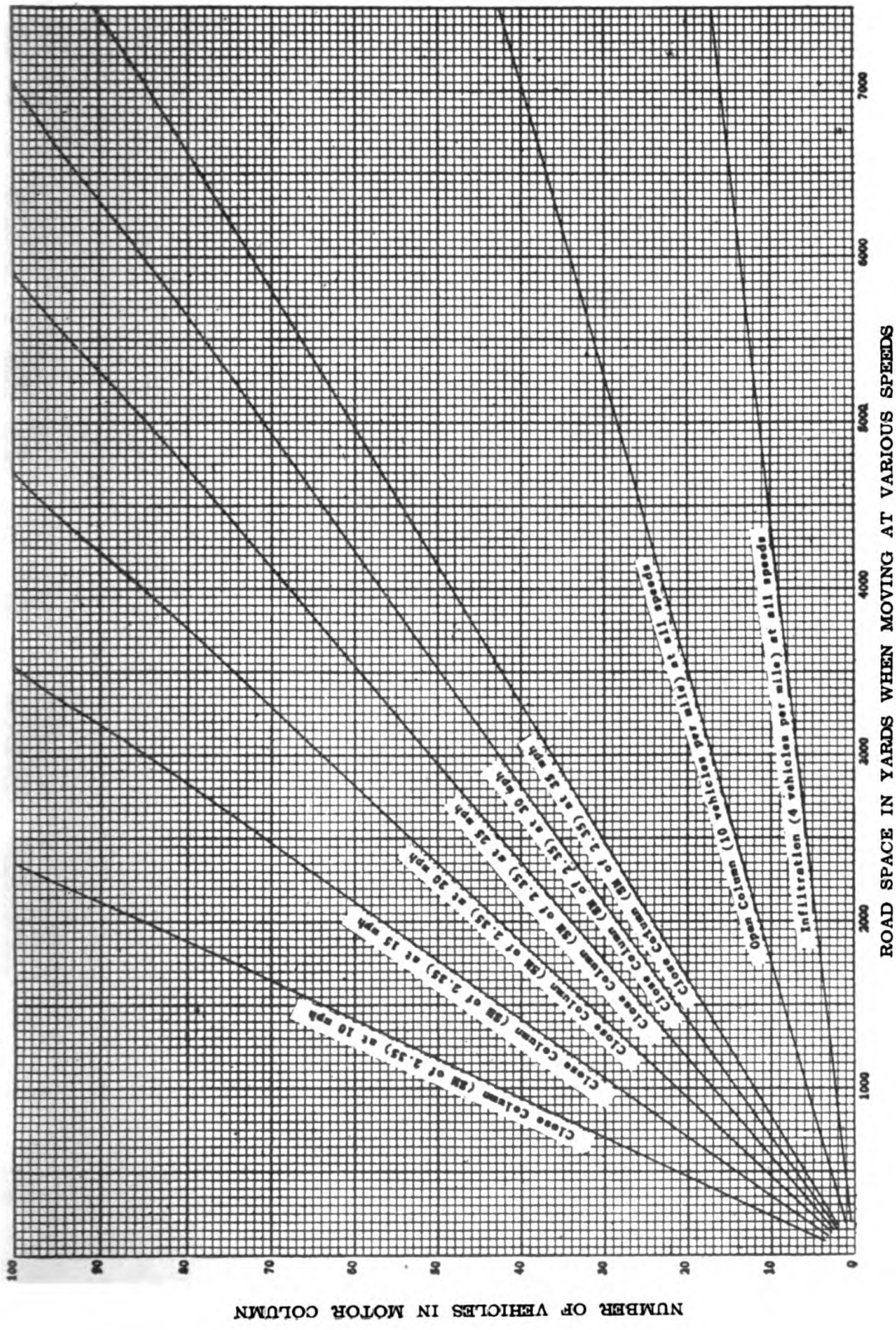
Determine the number of vehicles in the column, disregarding trailers or towed weapons.

Locate this figure in vertical scale on left of chart.

Follow horizontal line to right to intersection with diagonal line indicating the proper rate of march and type of march column desired.

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(Does not include road space between march units.)




ROAD SPACE IN YARDS WHEN MOVING AT VARIOUS SPEEDS
Figure 25. Road Space Graph.

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(Does not include intervals between march units.)

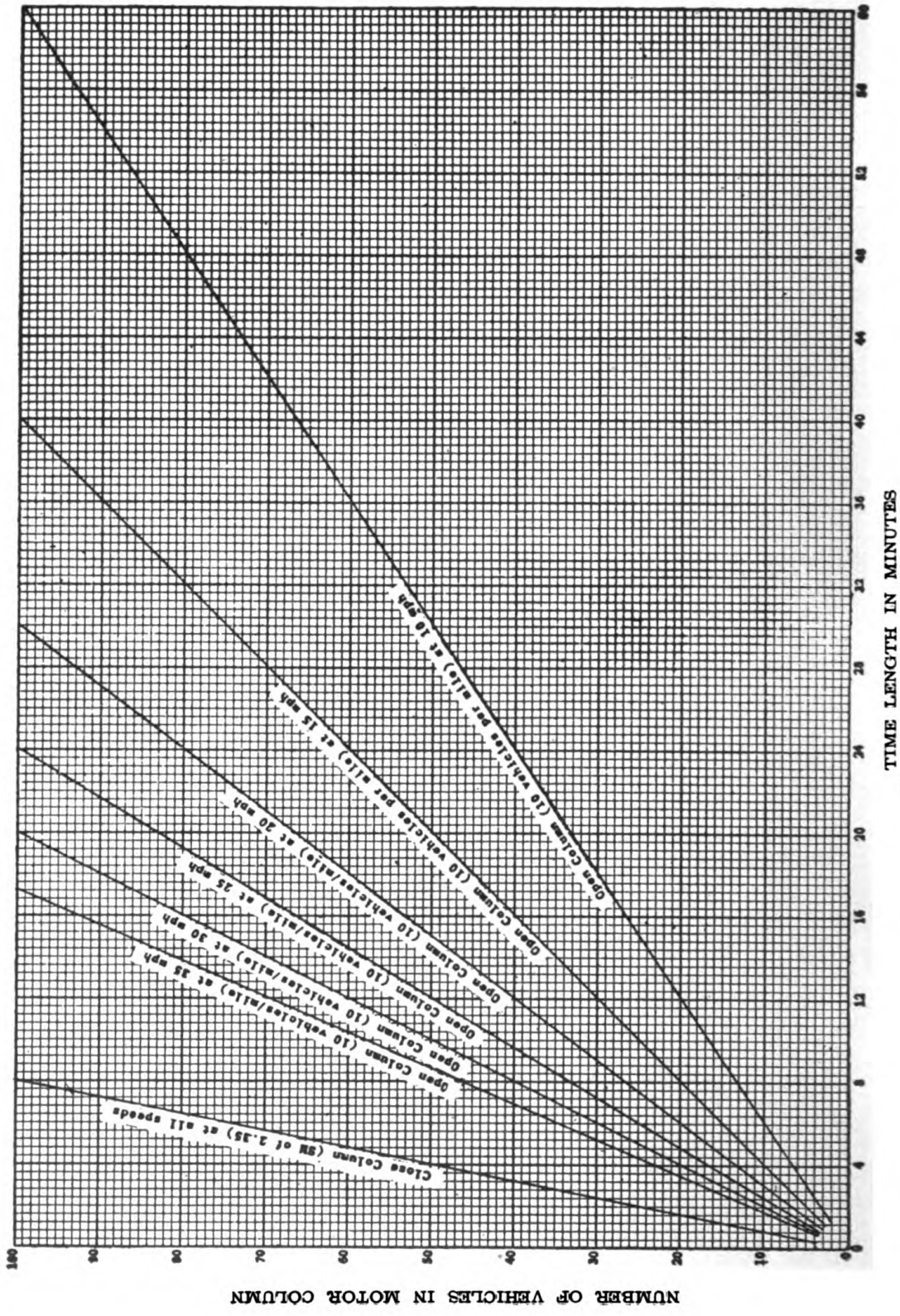



Figure 26. Time—Length Graph.

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From this intersection, follow vertical line down to horizontal scale.
Read on horizontal scale the average time-length of the column.

Motor movement by echelon is a movement of a unit, such as an Infantry Division, which, lacking sufficient organic transportation to move all personnel and equipment in one trip, uses a portion of its transportation to move its foot troops and essential supplies (by complete tactical units) in successive trips until the movement of all has been complete. The following formula is useful for determining the total time of such a movement:

$$\text{Hours required} = \frac{\text{Number of trips x distance in miles}}{\text{Rate of march in miles per hour}} + T$$

The "number of trips" is the number of trips in both directions; for example, in a two echelon movement three trips would be required—one forward trip to move foot troops, a return trip, and a third trip forward for the remainder of troops and organic loads.

"T" (a variable) represents the number of hours consumed in unloading and loading personnel and equipment, in turn-arounds at forward and rear assembly areas, and in closing the column into its area of destination. When two routes are available and the movement is made in close column in two echelons, a value of 3 may be assumed for "T", as giving a reasonable factor of safety. When more than two routes are available, the value of "T" may be reduced.

Rate of march in miles per hour represents the average speed of the vehicles in the movement, over a period of time, including short halts.

**Motor Marches.** The field order for a march may be accompanied by a march table, particularly when the details of the march are not subject to change and can be foreseen. The march table affords a convenient means of transmitting to subordinates the many details pertaining to the march, the inclusion of which in the body of the field order would tend to complicate or make it unduly lengthy.

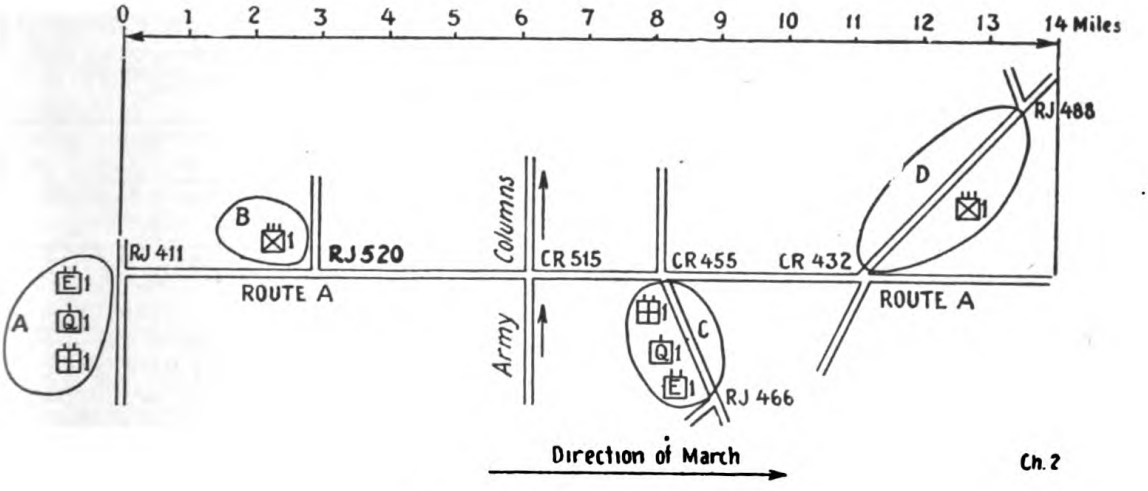



**Figure 27. March Graph.**

A march graph is the simplest method of obtaining data required for a march table or order. It shows the approximate location at any hour of the head or tail of each serial, providing the march proceeds as scheduled. The march graph is prepared on cross-section paper, using one sheet for each route. The vertical scale to the left, with point of origin at the bottom, serves as a distance scale in miles, and should show the relative locations along the route of critical points where coordination of the movement is required. The horizontal scale provides a time scale in hours, beginning at the left with the earliest hour at which the first serial may start the march.

A serial is represented on the graph by a horizontal line, drawn to scale, equal to the time-length of the serial. This line is plotted opposite the point on the vertical scale corresponding to the initial point of the serial; the left of the line

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is plotted above the hour, on the horizontal scale, at which the serial begins the march. From this left end, a line is drawn upward at a slope representing the rate of march (at 10 miles per hour, the slope equals 10 miles on the vertical to 1 hour on the horizontal scale). This sloping line represents the march of the *head* of the column. The intersection of this line with the horizontal line from any point along the route, if projected down to the time scale, will show the time the head arrives at such point. A line drawn from the right end of the horizontal line representing the time-length of the serial and parallel to the line representing the head of the column will represent the tail of the serial. Time of clearances may be obtained as explained for the head of the serial. The movement or location of a unit after it leaves the route represented on the distance scale, or passes the rear boundary of its destination (new bivouac area). may be shown on the graph by dotted lines.

If the hour at which a march must be completed is the only time factor known, the graph may be constructed starting with the tail of the column at the destination, and working back to obtain the starting hour for the head of the column. The graphs of all serials may be adjusted to allow for crossing columns or other interferences. The need for and the means of making such adjustments may be visualized. In preparing the march graph, a safety factor of 15 to 30 minutes should be allowed between serials at critical points on the route. In the march table this time is divided between serials in the same column and moving in the same direction, the major portion usually being assigned to the leading serial. A small gap of about 5 minutes should be reserved during which the route is clear. The heads of all serials and columns must arrive at their IPs (initial points) exactly on time.

Examples of march graphs and march tables follow: The division commander has directed that the 1st Engr Bn, 1st QM Co, 1st Med Bn, and the 1st Infantry, in army reserve, move under cover of darkness from their present bivouacs, areas A and B, to areas C and D, beginning at 1900 27 October 19—, under the following conditions. (See figures 27 and 28.)

ANNEX No. 1 to FO 2

Map—Operations Map

MARCH TABLE

1st Inf Div
Pennville (372-745), Pa
1500 27 Oct 19— —

| Serial No. | Organization and commander | Present location | Route | Location by 0430 28 Oct | March: Rate (miles per hour) | March: Type | March: Time-length (minutes)[1] | Control of Movement: Location (critical points) | Control of Movement: Earliest allowable arrival time | Control of Movement: Latest allowable clearance time[2] | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Col "A" 1st Inf Comdg:<br>Foot Troops 1st Inf<br>2,150 men | Area B | A | Area D | 2 | Column of 3's | 30 | RJ 520 (IP)<br>CR 515<br>CR 455<br>CR 432 | 1900 | 2025<br>2201<br>2307<br>0037 | |
| 2 | Lt Col "B" 1st Inf Comdg:<br>Motor elements 1st Inf<br>262 vehicles | Area B | A | Area D | 10 | Close column | 21 | RJ 520 (IP)<br>CR 515<br>CR 455<br>CR 432 | 0001<br>0021<br>0024<br>0042 | 0037<br>0057<br>0110 | |
| 3 | Lt Col "C" 1st Engr Bn Comdg:<br>Div Trs: 1st Engr Bn, 1st QM Bn<br>1st Med Bn, 269 vehicles | Area A | A | Area C | 10 | Close column | 22 | RJ 411 (IP)<br>RJ 520<br>CR 515<br>CR 455 | 0035<br>0043<br>0103<br>0116 | 0143<br>0201<br>0221 | |

OFFICIAL:
Y

X
Maj Gen

G-3
Distribution: (Same as FO)

[1]Does not include time between march units.
[2]Time listed in this column prevents forced marching by any serial between critical points.

**Figure 28. March Table.**

Movement is to be made without lights and completed prior to 0430 28 October 19——. Route A is available for the movement but CR 515 is reserved for army columns from 2336 to 0006 and from 0236 to 0300.

Warning orders are of great value in alerting troops and preparing them for a march prior to receipt of the detailed march order. A warning order should be

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issued orally, or, in the case of a large unit, in writing as soon as information of a contemplated move is received.

If practicable, a road or aerial reconnaissance of the route of march should be made prior to the issuance of the march order. Technique of reconnaissance for motor movements is covered in Section III, Chapter 4, FM 25-10.

Every motor movement must be carefully planned as to its own operation, and coordinated with G-4 to prevent dangerous traffic conflicts. When there is any possibility of producing conflicts with other traffic, organization commanders should obtain authority for a march made on their own initiative and give advance notice of time of movement and routes used. Logistical data needed for planning a motor march are given in Section VII, Chapter 4, FM 25-10.

The march order should be issued in sufficient time to allow subordinates to make their plans, issue their orders, and complete their preparations for the march. The amount of detail given in march orders will depend on the tactical and traffic situation, the state of training of the command, and the degree of adherence to a standing operating procedure.

Brief fragmentary orders may be used for simple motor movement. In ordnance units, the combination of a fragmentary, oral order and an annotated strip may will be used quite frequently. A detailed march order is issued in the form of a 5-paragraph field order accompanied by appropriate annexes

Movements of troops or supplies in non-organic vehicles are, in absence of orders to the contrary, commanded by the senior line officer present. In this case, the motor transport officer accompanying the vehicles acts only as technical advisor to the commanding officer of troops. However, if the troop or supply movement is being handled by the staff of a higher headquarters as part of a large move, command arrangements are as follows:

1. The higher headquarters ordering the move organizes, staffs and designates the commander of troops and the convoy commander for motor transport units.
2. The convoy commander designated by such orders is responsible both for the technical operations of vehicles and for the movements of the column. Orders to convoy-operating personnel in this case are given only by the convoy commander and his assistants.
3. The commander of troops exercises no control over the movements of the convoy or of individual vehicles, except in a tactical situation; then the decision rests solely with him. The troop commander is, in all situations, responsible for the administration and discipline of the troops being transported.
4. Whenever a tactical situation can be foreseen, the senior combat troop commander will be placed in command of the convoy, the motor-transport officer acting as his technical advisor.

The organization of a motor column depends primarily on the tactical and traffic conditions likely to affect its movement. The main column may be organized into serials and march units to facilitate column control. The management of the main column is handled by the column commander, assisted by the commanders of serials and march units and such traffic control personnel as may be posted along the route. Additional information concerning the basic organization of a motor column can be found in the Troop Training chapter.

## MOVEMENTS BY RAIL

### Procedure Before Departure

When a commanding officer learns that his unit is to move by rail, he will immediately supply the transportation officer at the home station with full details of the movement. It will then be the duty of the transportation officer to obtain a movement priority and to inform the necessary agencies of the following:

1. The number of cars required;
2. The location for spotting the cars to be loaded;
3. The hour or hours of departure;
4. Hour or hours of arrival of the troop train.

*The transportation officer,* will arrange for the installation of kitchen equipment within the railroad car designated and will check on car and comfort facilities that are supplied by the railroad company to see that they are sufficient for the

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duration of the move. He, or his delegate, will be present at the time of departure to solve any last minute difficulties.

The commanding officer will next appoint the following officer personnel:

1. Entraining officer;
2. A troop train commander;
3. Medical officer (one per train).

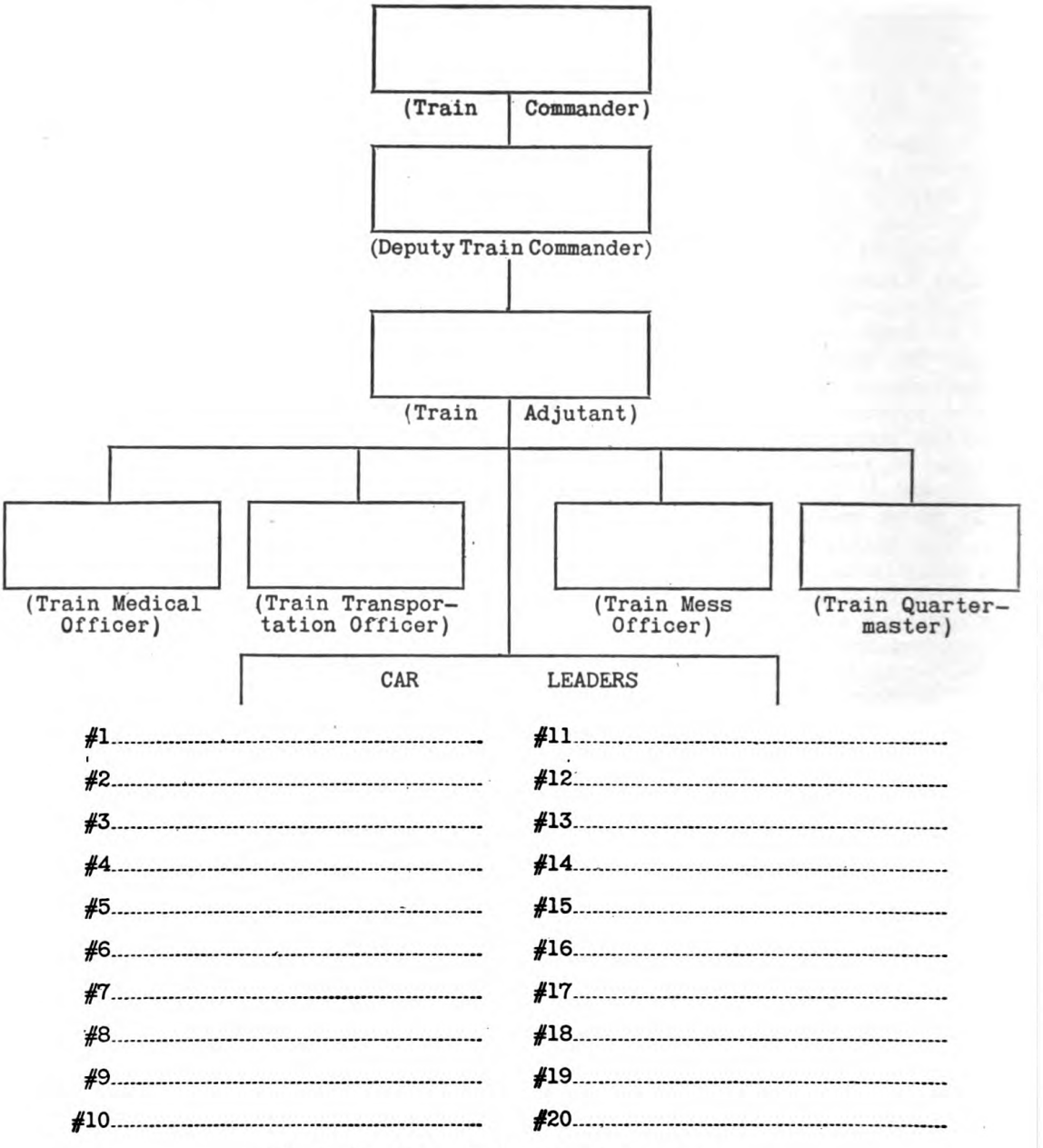



**Figure 29. Troop Train Organization Chart.**

The *entraining officer* will be responsible for the entraining of the unit. He will survey approaches to the entraining point and make all necessary preparations for loading the train. He must calculate all possible delays and interference with other traffic in the area. He will be in control of the actual loading. The job of preparation may be handled jointly by the entraining officer and the commanding officer of troops, but the responsibility still rests with the entraining officer.

The *troop train commander* in small units will normally be the commanding officer of the troop unit. In battalions and larger units, of course, a unit officer may be given this duty. The commanding officer of troops (also known as troop-

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train commander) will normally appoint and exercise close supervision over the following personnel:

1. The *train transportation officer,* who handles bills of lading, transportation requests, railroad tickets, and freight car records. He also verifies passenger personnel and the "Conductor's Report of Troops Carried" (signed by the troop train commander). He reports on the condition of property at the destination and, at completion of the movement, reports to the Chief of Transportation the degree of satisfaction of service furnished by the railroad or Pullman companies. (See par. 2A1, "Troop Train Commander's Guide," War Department, 14 March 1944.)
2. The *train quartermaster,* sometimes the unit supply officer, who is responsible for the kitchen car equipment, property, and supplies.
3. The *train mess officer,* normally the unit mess officer, who supervises the preparation and serving of meals.
4. The *train medical officer* who is responsible for the health of the military personnel and the details of sanitation, including the supply of drinking and cooking water.
5. *Car commanders, car guards* and *impedimenta guards,* who are responsible for carrying out the train commander's instructions in the proper manner.
6. Other officers and personnel, as necessary to assist in the successful administration and completion of the movement. (These may include deputy train commanders, a train adjutant, and unit censors.)

See figure 29 for a personnel chart showing typical organization of a troop train. This chart should prove useful as a handy reference for organization of any particular train.

A *train escort* will usually be assigned by the railroad to accompany the troop train. As a civilian representative of the railroad, he has had experience with other troop movements and is familiar with the problems to be encountered. He is on board to help the troop train commander in any way possible to assure the success of the movement. Train escorts will be changed by the various railroads if a troop train covers more than one railroad company's route. In the absence of a train escort, the railroad conductor will assist the commander. Official telegrams may be dispatched, essential telephone calls arranged for, and supplementary supplies secured with the help of either the train escort or railroad conductor.

The *train conductors, brakemen, flagmen,* and *engine crews* usually change at railroad division points, whereas Pullman conductors and porters usually operate through from starting point to destination. Because of this fact, these men, as well as the train escort, are authorized such sleeping accommodations as can be made available.

The responsibility of the troop commander begins at the home station and terminates upon arrival at the destination, after he has safely delivered the personnel and property to the commanding officer of the new station. It will be the duty of the troop train commander to assure orderly movement of military personnel and property which has been placed under his command.

The troop train commander may be placed in charge of a passenger train, official cars, a regular scheduled passenger train, or a mixed train of passengers and freight cars carrying animals, guns, vehicles, ammuniton and other impedimenta in addition to troops. He will bear in mind, at all times, that he is the troop train commander and does not command railroad personnel, nor does he control operations of the train. He is merely in charge of the military personnel for whose benefit the train is being operated. The troop train commander may be called the liaison officer between the troops and the railroad personnel and it is his duty to handle all military matters requiring revision or correction.

## Types of Railroad Cars

**Standard Sleeper:** / **Tourist Sleeper:** Accommodates approximately 39 enlisted men to a car, on the basis of 2 men in a lower berth and 1 man in an upper berth. The drawing room is used as an extra section accommodating 3 enlisted men.

**Standard Sleeper:** When occupied by officer, accommodates approximately 26, on the basis of 1 officer to each berth and 2 officers in the drawing room.

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Troop Sleeper: Accommodates 29 men (and porter).
Coach: Accommodates three men to each two seats, except on journeys exceeding 24 hours in duration, in which case one double seat will be provided for each man.
Reclining chair car: Accommodates 90 percent of capacity of each car.
Kitchen baggage car.
Troop kitchen car.
Diner.
Baggage car.
Box car.
Reefer (refrigerator car).
Flat car.
Gondola (open-top car with sides).
Stock car (animal car).
Caboose (train crew headquarters).

**Advanced Preparation.** As soon as the troop train commander is appointed, he will get all information about his particular movement. He will contact his immediate unit commander and local shipping transportation officer to ascertain:

a. What regulations and special instructions will govern his movement;
b. The schedule, routing, and make-up of his train;
c. What forms, certificates, and orders he must take along;
d. What his train organization will be;

**CAR NO. IN TRAIN** _____ **MAIN NO.** _____ **CAR LEADER** _____
**Train Commander** _____ **is in Headquarters Car** _____ {forward / rear}.
**Train Medical Officer is in Car** _____ {forward / rear}. **Sick Call will be held at** _____ **and** _____, **daily.**

1. All instructions given by the car leader will be obeyed.
2. Messing arrangements, stops for exercise and for other purposes, will be as announced by the car leader.
3. No intoxicating liquor or beer will be carried or consumed by any member of this unit during the trip.
4. Enlisted men assigned to one car will not leave that car to go to another car without proper authority from the car leader or an officer. Seats assigned at the beginning of the journey will not be exchanged without permission of the car leader. No man will detrain without permission of the train commander.
5. No man will put his arms, legs, or head, or any part of his body out of the car windows, nor will any man ride on the top, steps, or in the vestibule of the car, or dangerously near open side doors of baggage cars.
6. Do not throw ANYTHING from car windows or car doors. Cars will be policed immediately after each meal and must be kept clean at all times. Washing mess kits or other equipment in drinking water fountains or in washrooms will not be permitted, nor will garbage be disposed of in toilets.
7. Personnel will keep themselves neat and clean at all times.
8. If smoking is authorized, care must be taken in the disposal of ashes and butts to avoid danger of fire and to prevent the collection of unnecessary dirt. There will be no smoking in berths at night.
9. There must be no vulgarity, swearing, or shouting. Women or girls on passing trains and on station platforms will not be molested by words or gestures.
10. Toilets will not be flushed while train is at stations or passing through towns.
11. The overhead EMERGENCY CORD is for the use of the train crew. Under no circumstances will Army personnel pull the cord unless there is POSITIVE evidence that an emergency exists.
12. Cost of railway property lost, damaged, or destroyed will be taken from the pay of the man responsible. If the responsible individual cannot be determined, the cost will be divided among the occupants of the section or car (AW 105).
13. Taps.—Berths will be prepared by the train porter and will be ready for occupancy at 2130 each evening. Men will retire and lights turned off no later than 2200.
14. Detrainment at Destination.—Upon arrival at destination, personnel will remain in their seats until directed to make ready for detrainment. Upon orders to detrain, the men will leave the car as directed, in a quiet and orderly manner. Immediately upon leaving the train, they will form in a company-front at a place directed by the officer in charge.

Name _____
Train Commander—Rank

**Figure 30. Train Regulations.**

e. Whether or not his train will carry explosives, ammunition, animals, guns, vehicles, or any other items requiring special handling and, if so, what his duties will be;

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f. How his men will mess (kitchen car, diner, or box lunch).

1. If messing will be in a railroad diner, it will be the duty of the troop train commander to check on the use of meal tickets.
2. If messing will be from a kitchen car (see figure 31), it will be the duty of the train mess officer to inspect kitchen car equipment to see that it is clean and properly installed, and that all necessary safety factors have been installed. He will also determine, procure, and store within the mess car the correct amount of gasoline to be carried, and will check that the prescribed fire fighting equipment has been placed aboard. He will develop a satisfactory plan for serving the food while enroute.

A unit commander, upon learning that his unit has been ordered to move, will see that information concerning the movement is discussed with only those authorized to know about it. He will make certain, prior to departure, that troops are instructed not to discuss military matters with anyone except authorized personnel.

All movements will be assigned a 'main number' by the Chief of Transportation which is to be used as its only means of identification. *All* movements will be referred to by its main number only, unless further identification is necessary. It will be the duty of each individual to see that information as to the designation and number of organization, point of origin, destination, number of personnel, nature of impedimenta, property, or any other material that would be of military value to the enemy is not divulged to unauthorized persons.

The troop train commander or his delegate (normally the train mess officer) will arrange with the home station sales officer for complete stocking of all food and supplies necessary for consumption en route. Information on how to draw and account for subsistence and how to secure emergency supplies from designated supply points along the route of travel can be obtained from the home sales officer. A list of emergency supply points along the route of travel can be obtained from the home sales officer upon request.

During any troop movement some degree of relaxation should be in order, but prescribed rules of conduct and safety must be observed. These rules or regulations should be read to the troops before entraining. (See figure 30). A copy of these regulations should be posted in some conspicuous place in each car, and it will be the duty of the car leaders to see that they are complied with.

Just before the troops entrain, it will be the duty of the troop train commander, in company with the shipping transportation officer and the train and Pullman conductors, to make a last minute inspection of the rail and Pullman equipment. He will make a detailed list of any damage he might find. Another check at the end of the trip will be made, and the two lists will then be compared to determine specific damage, if any, occurring during the trip. The troop train commander will never assume that there is no damage present in rail or Pullman equipment. This equipment, being in constant use, is not always in perfect condition and it is necessary to conduct a thorough inspection both at departure and arrival.

Just before departure, the troop train commander will send a wire (collect) to the Traffic Control Division, Transportation Corps, Washington, D. C., giving the main number, the date, and exact time that the train leaves.

## Control During Journey

In order for a troop movement to be a success, the troop train commander must maintain constant control over all military personnel, both while traveling and at intermediate stops. A few provisions of control which the troop train commander may follow are as follows:

a. If the make-up of the train will permit, the train headquarters can be established in a car near the center of the train.

b. A system can be set up whereby train escorts or conductors can be contacted at any time of the day or night, and which, in turn, enables them to reach train headquarters at all times.

c. The car leaders can prepare seat rosters for each car, thereby providing a record of where each individual is located. (See figure 32.)

d. Car guards will be posted at the ends of each car to prevent personnel from moving from car to car unless otherwise authorized. The doors at the ends of the

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cars should be kept unlocked during the journey so that military personnel and the train crew may pass through the train in performance of their duties.

e. An interior train guard should be maintained to provide security when the train is at a halt. All guards should be carefully instructed on safety precautions and rules of conduct. A schedule for changing guards should be coordinated with the authorized scheduled stops of the train and confirmed by the train escort.

f. Changes in instruction and daily routine schedules should be read to the men in each car and then posted within each car.

g. All car leaders should be notified as to the time and length of stops sufficiently in advance of each stop to permit preparation for proper detraining and entraining. It should be the responsibility of the individual car leaders to see that all personnel have entrained before the train departs and to notify the troop train commander that all troops are accounted for.

The troop train commander should permit no member of his command to dispatch any telegrams, letters, postal cards, or messages from the train.

While unauthorized persons should not be permitted to enter any passenger or freight car of the train, your security measures must not stop train crews from doing required servicing and making safety inspections.

**Medical Attention.** Sick call should be held twice daily at a definite time in the train medical headquarters. In addition to sick call, train medical officers should go through the cars at least twice a day to note the condition and general health of each individual on the train. This is necessary because the lack of exercise on particularly long trips endangers the health of the men.

In the event that a medical officer is not present on the troop train, the troop train commander, in cases of emergency, is authorized to call upon the train escort for assistance. The train escort will notify a railroad doctor to meet the train at the first possible station to render first aid or any necessary emergency treatment. If a railroad doctor is unavailable, the train escort will call upon the station-master to secure the services of a civilian physician. If an individual requires hospitalization, regulations provide that he be removed from the train and sent to the nearest Army medical facility. In the event that no federal facilities are available, civilian hospitals and physicians may be utilized in order to save lives or prevent great suffering. When military personnel are removed from a troop train and hospitalized, the troop train commander will notify the headquarters of the service command through which the train is passing at the time of his action. He will give the soldiers name, serial number, the name of the hospital, and the city in which it is located.

In case of death of military personnel when there is no medical officer aboard the troop train, the services of the nearest railroad or civilian physician must be obtained to certify that death has occurred. The troop train commander will then wire or telephone (collect) the headquarters of the service command through which the train is passing at the time, give full details, and ask that an ambulance from the nearest Army installation meet the train at the first possible station. When the remains are removed from the train, the Medical Department assumes responsibility for further disposition.

**Messing from Kitchen Cars.** If troops are to be fed from kitchen cars, the following suggestions may be helpful to the troop train commander. Definite hours should be designated for serving meals in accordance with the convenience of the troops, requirements of the kitchen, and situations which may arise enroute. In serving meals to the troops in their seats, the food may be carried in containers by the kitchen detail and a complete meal served to all of the occupants of one car at a time. In fairness to the troops, the same car should not always be served first. New details should be appointed each day to serve the food. There should be a roster posted in the kitchen car as to the number of troops assigned to each car. There should be four buckets placed on the platform of each car for cleaning mess kits and utensils. The first bucket is for garbage, the second one is to be filled two-thirds full of hot water for washing, and the third and fourth buckets are to be full of clean scalding water for rinsing. It is the responsibility of the car leader to see that all mess kits are free of food, washed in the soapy water, and then thoroughly rinsed in the clear hot water.

If absolutely necessary, the railroad train and Pullman personnel may be sub-

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sisted enroute at a cost of 25 cents per meal and in the same manner as officers and warrant officers.

Garbage, paper cups, plates, and other trash accumulate quickly. Unless there are constant policings and repeated inspections, cars become unsanitary. To keep the train clean at all times, the men must police the cars after each meal and at other prescribed intervals. Frequent inspections must be made to see that personnel are discharging these and other necessary duties.

It will be the duty of the troop train commanders to see that garbage, paper plates, lighted cigars, hot ashes, crates, and milk cans are not thrown from troop trains along the right of way. Designated garbage and trash disposal points have been located all along the different railroads. The troop train commander will make sure that the railroad train escort tells the train mess officer where and at what hour service stops will be made so that garbage and trash may be disposed of safely.

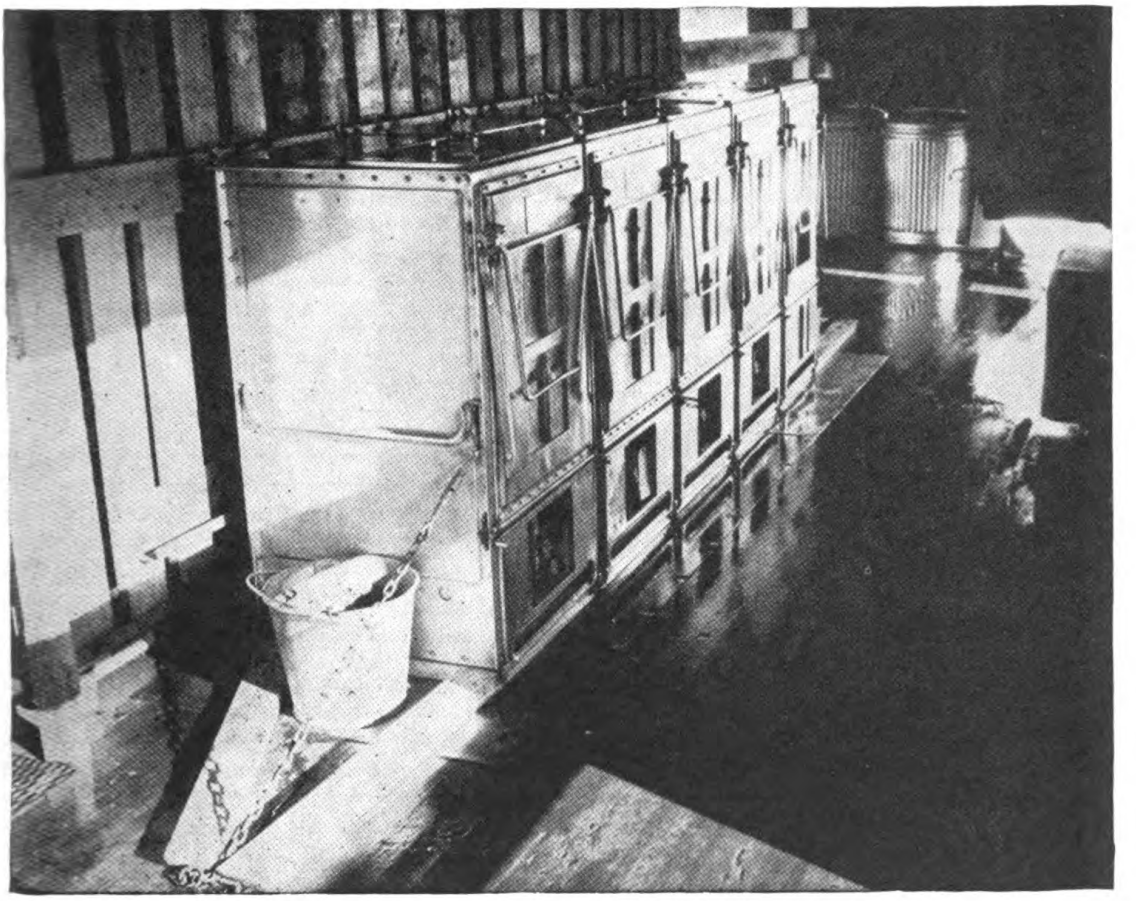


**Figure 31. Range Installation in Kitchen Car.**

Even though news agents, licensed venders of soft drinks, cigarettes, confections, and members of charitable organizations are not allowed aboard troop trains, they may, when so authorized by railroad and terminal companies, sell or distribute to military personnel on troop trains from station platforms. When unit commanders in charge of troops changing stations desire Red Cross services, requests will be submitted through military channels by restricted correspondence or TWX to the commanding general of the appropriate service command who will be responsible for making local arrangements. Under no circumstances will information concerning troop movements be furnished direct to the American Red Cross or other similar organizations. When this service is rendered, all concerned will be notified that no publicity or information concerning the identification, strength, equipment, or destination of the unit will be disclosed. The unit commanders who make use of this service are responsible for the safeguarding of military information by all members of their command.

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**Damage to Railroad Equipment Costly.** Any damage to railroad equipment must be paid for by the person or persons responsible. It will be the responsibility of the troop train commander to report any damage that has occurred during the movement. A large amount of damage may be avoided by making frequent inspections to see that train regulations are being obeyed.

**Unusual Delays.** If there is any unusual delay enroute, troop train commanders will first request the train escort or train conductor to take necessary action to have the original schedule of the train maintained. If, after taking this action, improvement in schedule is not evident, the troop train commander will contact the office of the Chief of Transportation, Traffic Control Division, Passenger Branch, by telephone. Whenever it is necessary for a troop train commander to make such a telephone call, the charges may be reversed.

CAR NO. IN TRAIN_____ TYPE CAR_____ MAIN NO._____ CAR LEADER_____

| Section No. | Name | Berth | Section No. | Name | Berth |
|---|---|---|---|---|---|
| (2) | | U | (1) | | U |
| | | L | | | L |
| | | L | | | L |
| (4) | | U | (3) | | U |
| | | L | | | L |
| | | L | | | L |
| (6) | | U | (5) | | U |
| | | L | | | L |
| | | L | | | L |
| (8) | | U | (7) | | U |
| | | L | | | L |
| | | L | | | L |
| (10) | | U | (9) | | U |
| | | L | | | L |
| | | L | | | L |
| (12) | | U | (11) | | U |
| | | L | | | L |
| | | L | | | L |
| (14) | | U | (13) | | U |
| | | L | | | L |
| | | L | | | L |

_____
Porter

DISTRIBUTION:
1 copy to train commander.
1 copy to car leader.

Total assigned_____

**Figure 32. Car Seating Roster.**

If it is apparent that arrival will be delayed to such an extent that it may change messing or housing requirements at the new station, the troop train commander should send a wire to the station commander at the destination, identifying his movement by main number only, and tell him the later date of expected time of arrival.

Schedules of troop trains are set up to arrive at their destination at daylight. If a troop train arrives before midnight, the troops must vacate the sleepers im-

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mediately unless special conditions exist. If the troops arrive after midnight, the sleepers usually may be occupied until 0700 hours. If arrival will be made after midnight, the troops will not detrain immediately upon arrival. The troop train commander will send a wire to the transportation officer or station commander at the destination, so that provisions may be made for the required sanitary facilities. The troop train commander will keep a record of the delays en route and other occurrences which may compel the use of railroad equipment beyond the scheduled hour of arrival at destination. A reasonable length of time will be allowed for detraining and unloading. A similar record will be kept of delays if detraining and unloading. Such information may determine whether the government will be charged for additional occupancy time.

**Using Sleeping Space Not Authorized.** All space actually used is charged for even though it would otherwise remain vacant. If space in excess of that authorized by the transportation request is used and not paid for by the individual using the space, the troop train commander will be called upon to remit the additional cost. If an officer desires to use additional space, he must pay the excess cost from his personal funds.

**Accidents and Emergencies.** While train accidents occur infrequently, the troop train commander should nevertheless consider what action would be taken to avert panic and to cope with possible injuries to military personnel. In case of an accident or an emergency, the troop train commander and his troops should render the train crew such assistance as may be needed.

In case of an emergency requiring military assistance, including the obtaining of military personnel, the troop train commander will wire or telephone (collect) for such help to the headquarters of the service command through which his train is passing at the time.

The troop train commander will make certain that the troops are notified of the hour of arrival in sufficient time to detrain promptly when the order is given.

## Action Upon Arrival

On arrival at the destination, the troop train commander will send a wire (collect) to the Traffic Control Division, Transportation Corps, Washington, D. C., giving the main number, the date, and exact time that the train arrived.

The instructions of the station commander at the destination will be conveyed to the troop commander by a staff officer meeting the train. He will also assist the troops in becoming oriented.

All food and gasoline will be turned in to an officer designated by the station commander at the destination to meet the train for this purpose. He will furnish the troop train commander with a receipt for such stores.

After the troops have policed each car and have detrained, the troop train commander will, in company with the train and Pullman conductors, inspect the vacated cars to ascertain whether or not any railway or Pullman equipment or property has been damaged or unlawfully removed by the military personnel en route. The troop train commander will prepare a written report, stating either that there was no damage or unlawful removal, or, if there was damage, the value of equipment or property damaged or unlawfully removed, responsibility therefor, and names of known witnesses. The report will be signed jointly by the train and Pullman conductor and submitted to the commanding officer to whom the troop train commander reports, or to the individual who takes charge of the troops at the destination. The railroad also has a form of report which will be signed by the troop train commander and the conductor. In cases of disagreement, where either of the conductors decline to sign the report of the troop train commander, separate reports are necessary. The conductor's report is to serve as an enclosure to the basic report of the troop train commander. In the event the troop train commander returns to the point of departure, he will submit to the commanding officer thereat a copy of the inspection report and the accompanying report of the conductors, if any.

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## REFERENCES—RAILROAD INFORMATION

Administrative Troop Movements By Rail, Sect III, FM 101-10, Chap 2.
Transportation of Individuals: AR 55-120.
Sleeping-Car and Similar Accommodations, AR 55-125.
Transportation of Troops: General, AR 55-130.
Kitchen Cars and Dimensions and Capacities of railroad cars, AR 55-135.
Transportation of Troops: Entraining, Duties Enroute and Detraining, AR 55-145.

*What The Train Whistles Mean:* The sign "o" means a short sound; "———" means a longer sound.

| | |
|---|---|
| o | Signal to apply brakes and stop. |
| — — | Signal to release brakes and proceed. |
| —— | Nearing stations, junctions, drawbridges, mail cranes located between stations, etc. |
| — o o | To call attention to signals for a following section. |
| — o o o | Signal for flagman to protect rear of train. |
| o o o — | Signal for flagman to protect front of train. |
| —— —— o ——— | Nearing a public crossing like a road or highway. |
| o o | This is the engineer's answer to most signals. |
| o o o | When train is standing, this signal means "back up." |
| — — — — | Signal for flagman to return from west or south. |
| — — — — — | Signal for flagman to return from east or north. |
| Many short sounds | Warning to persons or livestock on track. |

*What The Railroad Signal Lights Mean:* While railroad signals may be combined to deliver a great variety of "messages" to the men operating the trains, there are three basic signals in general use, which deliver the following indications to the enginemen:

A green light, a vertical semaphore arm, or a vertical row of lights, means PROCEED or GO.

A yellow light, a semaphore arm slanting at an angle of 45 degrees, or a slanting row of lights, means PROCEED BUT WITH CAUTION.

A red light, a semaphore arm in a horizontal position, or a horizontal row of lights, means STOP.

## WATER TRANSPORTATION

Ordnance officers will habitually be prepared to participate in the movement of personnel and materiel via water surface transportation. A considerable measure in the current success of overseas operations may be directly attributed to the ordered, efficient, and coordinated operation of our water transportation system.

Transportation Corps responsibilities and functions regarding water transportation are included in chapter 1, Organization of the War Department. Naval vessels, as well as merchant marine shipping, may be employed in water movement. From here on, let us assume you have received orders which will involve water movement, that initial preparation of the men or materiel and movement through the port and onto the ship are each completed, and that now useful data is needed as to just what takes place from here on to arrival at the far shore. Whether moving from the United States to an overseas destination, or point-to-point in a foreign theater of operations, the basic water transportation procedure still applies. However, wide variations in loading and ship movement procedure will be encountered between task force and routine convoy water movement operations. The latter involves much data common to task force procedure and will be considered first.

**Routine Convoy Water Movements.** Where applicable, movement orders will be read and thoroughly digested prior to the movement. Officers in charge will contact port authority liaison and coordinate all activities with officers assigned to the particular ship or ships on which movement will be made. For cargo shipments, it is unlikely your materiel will load the entire ship. List all materiel and personnel carried in each vessel, designating all particulars, such as service concerned, quantity, weight, cubage, storage location, full name and nationality. This is known as the Ship Manifest and Passenger List respectively and is drawn up by the Operations Section of the Port Authority under the provisions of rules established by the U. S. government and under the super-

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vision of the War Shipping Administration. Normally one port officer 'works' each ship during cargo loading and he is the man with which to work until this phase is completed. The port officer has the ship manifest, is well versed in load procedures and regulations, and further, is delegated complete responsibility for all cargo and personnel loaded aboard. He may, or may not be the permanently assigned transport commandant (Transportation Corps). He should be advised of special handling matters well in advance; for example, ship loading booms usually run 3, 5, 10, 15, 20 and 30 ton capacities—if perchance your materiel will run overweight for the hold designated, let the port officer know about it and in time. Shipping containers filled with liquids (especially acid), or engines with oil in their crankcase—let him know the story. Assist him to identify materiel with the manifest, as is necessary. Final authority for cargo storage aboard ship is the responsibility of the ship's first officer, who in turn is directly responsible to the master—such is true also in combat loading task force operations. Officers will bear in mind that planning the oversea movement has been coordinated with naval and merchant marine authorities well in advance of operations.

Water movement normally involves mixed shipments of cargo and personnel, with the loads mixed aboard a single ship. This is the case with Liberty ships which have been modified for just this reason. Converted passenger vessels normally carry only personnel with their personal baggage and so-called unit housekeeping equipment, the latter including such items as mess equipment, unit records, and typewriters. Large passenger ships normally carry as high as forty different units each having a detachment commanding officer. Let us assume you are in the latter category in the discussion following.

**Channels of Command.** Command channels start with the commodore who is responsible for and completely in charge of the convoy movement. The commodore is a naval officer and directs activity of the naval escort vessels as well. Since his duties principally concern convoy arrangements of ships, speed of travel, direction of course, and provisions for executing convoy security, you will have no problems here. Ship masters remain solely responsible for their vessels but follow orders of the commodore. The transport commander, regardless of his grade with respect to other officers aboard ship, is next in line, he is responsible for all army activity aboard ship in the same sense as a post commander ashore. His job principally concerns liaison ashore during loading and unloading ship, liaison with the master on matters affecting cargo and troops, and liaison with the commanding officer of troops (COT) who is directly over you as a unit or detachment commander. The latter two functions frequently are combined into one job assigned a single officer who may have an executive and staff to assist him.

Army activities aboard ship are administered with and through the commanding officer of troops. Guides selected from your unit direct the men to the assigned section. After satisfactory check-in from the passenger list is completed, you report immediately to the COT or his adjutant. Normally during loading, troops remain in their area setting up bunks, policing quarters, etc., until released by your second in command according to plan. Your plan will include an informal formation at this time wherein the men will be advised as to security measures during and after completion of the movement, hours of mess, blackout regulation, authorized uniforms, daily schedule of calls, life-boat and fire drills, conduct during emergency, sick call, etc. Further, your plan will provide a duty roster designating one officer to be continuously in the troop area with provisions for quarters there as well. Standing orders and operating procedures in effect aboard ship will be read to all officers and men.

**Officer Duties.** Officers may expect to draw duty roster assignment to such duties as officer of the day, security, mess, censorship, police and sanitation officer, and other tasks often assigned in a garrison set-up.

Concerning troops, the following will habitually be performed:

*a.* Guard as required by the situation.

*b.* Charge of quarters.

*c.* Mess details.

*d.* Labor details—for police and clean-up of quarters, latrines, and ship as a whole.

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*e.* Daily inspection of quarters and latrine by detachment commander.

*f.* Mail censorship.

*g.* Enforcement of conduct and good order among troops, including blackout restrictions.

*h.* Orientation.

*i.* Dissemination of news.

*j.* Execution of a training program; calisthentics are normally sufficient.

**Orientation of Men.** Appeal to the soldier's sensibilities in a personal informal manner. Normally, you may simply state the destination is known to none aboard save the ship's master, and it therefore is impossible to state where you are going. Tell them that convoy protection, both by escort vessels and plane, is being provided, although at times such protection may not be visible from the ship. Assuming advance information, prepare troops for the social and financial environment of the country to which they are going.

You will explain that overcrowding aboard ship is necessitated by exigencies in shipping problems. Water moves are most difficult and require ingenuity and devoted attention of junior officers and noncommissioned officers. Stress the fact that the move is no joy-ride or vacation; that organizational equipment (if stowed aboard), individual equipment, and persons will be regularly checked for fitness and cleanliness (weapons are daily checked against rusting); that ship's orders will be enforced with the usual penalties for infractions; that assignments necessary for the general welfare of all concerned are made as customary from a duty roster and are not 'made work.'

*It is most important during orientation to stress "THERE IS NO PLACE WHERE A MOMENT'S CARELESSNESS BY AN INDIVIDUAL OR A HALF-HEARTED COMPLIANCE WITH REGULATIONS CAN SO SERIOUSLY AFFECT THE SAFETY AND LIVES OF SO MANY AS ABOARD SHIP." Such Rules may seem strange and difficult to reason out, yet are solely to provide safety and well-being for all.*

**Conduct Rules Aboard Ship.** On most water-moves, as shown in Army Regulations, the following rules also apply: (See AR 55 series in this connection).

Intoxicants are forbidden aboard ship.

Gambling, boisterousness, and profanty are prohibitd.

Ship's officers and crew are not consulted by military personnel, other than the transport commander, unless specially authorized to do so.

The use of cameras, radios, electric razors, electric irons, etc., is prohibited to insure complete radio frequency silence during the movement.

Smoking is prohibited in areas as directed by the transport commander and throughout the vessel while in port areas.

Life belts are worn or carried at all times aboard ship.

Ship property will not be removed.

**Preparation for Debarkation.**

Complete police of ship.

Inspection of personnel and organizational equipment.

Smoking is prohibited upon entering the harbor.

Security measures are repeated. Do not talk, write letters, send telegrams, or in any way communicate with unauthorized personnel concerning any detail or phase of the movement.

Fill canteens with water and provide troops with lunches.

Insure that no ship property is taken ashore.

Assign junior officers to baggage, transportation, train loading, passenger list, and security details with appropriate non-commissioned officers to assist them.

Arrange for conversion of money into foreign currency when appropriate.

Collect all outgoing mail from troops

**Task Force Convoy Movement.** Separate tactical organizations will be set up for the administration and operation at the near shore (starting point of operations) and at the far shore (objective). No planning angle will be overlooked for insuring that men, organizational equipment, and supplies are promptly available when called for at the far shore. The command will issue detailed, specific instructions as to the manner in which personnel and materiel will be spread-loaded throughout the various ships of the convoy.

Considerable staff planning and responsibility for the execution of landing opera-

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tions is allocated to the U.S. Navy. Joint Army and Navy staffs will sit in the pre-invasion planning functions of forces to be employed. You should bear in mind that, for an invasion involving water movement, it is a fixed responsibility of the U. S. Navy to transport safely the armed forces and their supplies from the near shore so that they are delivered at the proper place according to schedule.

**Transport Loading Officer.** Let us consider you have been designated transport loading officer for one ship in the task force convoy (procedure normally used). Duties of the transport loading officer essentially include those listed above and, in addition, the following:

Contact all organizations which will furnish personnel or materiel to be loaded aboard your ship, passing pertinent details on to the commanders concerned. Such contacts will normally follow the task force preparation phase. Specifically, one contact should be made during the planning phase to check correctness of data pertaining to your ship load; one contact during preparation phase to ascertain minor changes in personnel and equipment; one contact after units have moved from assembly area into port loading area to insure complete suitability of his transport loading diagram.

Liaison with near shore control operation and the port liaison officer. Duties generally follow those previously described. In addition, take such steps as are necessary for a continuous and expeditious loading of the ships when such operations are in progress.

Flexibility underlies each element of the task force plan. Transport loading where practicable is planned so that any desired item may be off-loaded without necessitating removal of other cargo aboard ship; otherwise, the items to come off first are loaded last. Storage is further planned such that sinking one or more of the ships will not seriously impair the supply picture from the tactical standpoint. Officers should note that loading task force convoys is a tactical, rather than overhead function. Tendencies or attempts to load unauthorized and unspecified materiel aboard ship constitute a breach of orders, and unless otherwise summarily settled, will be reported by the transport loading officer through command channels. Generally units may carry with them only such materiel authorized by existing Tables of Organization and Equipment, and special directives of the task force commander.

Men and vehicles are mix-loaded in task force water moves, while some vessels, solely cargo-loaded, may accompany the initial convoys. The task force commander is responsible that personnel and materiel planned for the operation is included in the convoy and that storage has been accomplished according to his directions. Ship's masters and their first officers (who may or may not be naval personnel) are responsible for cargo and for personnel loads as previously stated. Unit commanders are responsible for their organizational equipment, its status, condition, and completeness; for their men; and for loading as designated in the transport loading diagram.

Each transport loading officer prepares a complete and accurate transport loading diagram and submits it to higher command for approval.

During loading, he insures operations are judiciously and punctually carried out. His functions end upon a report to higher command (in writing, if so directed) of the satisfactory completion of the loading operations.

Task force convoys moved to Africa from the U. S. in September and October of 1942 in voyages of up to six weeks duration. Voyages to the Pacific Theater and the Far East are of even longer duration. Men must arrive at their destination in good mental and physical condition ready to fight or provide useful service. Under these conditions, an energetic and thorough training program will be carried out throughout the trip as listed below.

**Unit Commander.** The duties prescribed in routine convoy operations apply in task force movements and, in addition, the following rules must be observed:

Troops are assembled and briefed regarding the tactical situation. Tend to extend beyond the usual data issued troops and give them straight dope in a forthright, succinct manner. Each officer and man should know his particular job.

Inspect organizational equipment. Normally vehicles are moved by the using

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unit and the anchorages used should be frequently checked against loosening up from ship rolling and pitching.

Inspect for completeness and condition of personal equipment and rations carried by the men, if any.

**Activities During Voyage.** The voyage will not be a vacation nor will it greatly differ from normal duty. You and your men will continue to train and work, although time for recreation will be increased.

Consider recreation first as that consuming most time. As the transport chaplain or a recreation officer will supervise recreation aboard ship, the unit orientation officer should contact him upon going aboard to get assistance in arranging the atheltic, recreation and orientation program. These activities will be considerably limited by the space available.

Arrangements for showing movies are made for all personnel aboard when available. Most transports will have musical instruments available and a small band may be organized. The band can tour the ship and entertain the men in the various compartments. Some transports are equipped with a public address system and have facilities available to play recordings. This has proved to be a most popular means of entertainment and should be used at every opportunity As troops are also interested in the latest news, the ship's radio should be used to gather news which is then broadcast to the troops by the public address system. A daily newpaper may be published.

Large transports frequently have library facilities available for the convenience of the officers and enlisted men. The American Red Cross issues a personal kit to all military personnel on board. This kit, retained by the individual, contains such items as stationery, playing cards, reading materials, and cigarettes.

**Training and Hardening.** Training and hardening will be limited by the normally crowded conditions aboard transports; yet maintaining the physical condition of the soldier is imperative. Organized physical exercises and games should be conducted whenever sufficient deck space is available. However, on ships that are double-loaded, exercise will generally be restricted to walking men on deck. All men must get on deck for exercise and fresh air. Unit medical officers should make regular inspections of troop compartments to insure that even seasick men are taken to the deck for fresh air.

Daily cleaning of weapons must be SOP: officers and NCO's must make thorough, daily inspections to insure that all weapons are properly cared for. Sufficient oil and cleaning materials must be carried by individuals to clean weapons during the voyage. Oil and thong sets are essential. Do not make the mistake of storing the oil and cleaning materials in the hold of the ship where they cannot be reached.

Space to assemble men for lectures or training films is limited and only very small groups can be accommodated. Training programs for shipboard should include only those subjects adaptable to crowded conditions.

The need for field manuals on board ship will be limited. Only pertient manuals should be carried while the remainder are stored with the organizational equipment.

Subjects that require detailed study are map reading, languages, and foreign orientation texts. Special sealed packages of foreign maps are frequently placed aboard transports for study en route; these should be thoroughly used. Each individual is furnished an informal reference book on the nation which is to be his destination. Men should be held responsible for mastery of this information as it will aid them greatly in adjusting themselves to their new environment.

**Sickness.** Self-remedies should be avoided. Sickness will be handled by medical officers who hold sick call for the ship's entire complement of Army, Navy, and merchant seamen personnel. In extreme emergencies, critical cases may be transferred to a naval ship where general surgery may be performed. Plans should be made so that men who are chronically seasick may perform their duties on deck where there is a maximum amount of fresh air. (See Medicine Section in Troop Training Chapter.)

**Mess.** Organization and supervision of messing includes: preparation of messing schedules, organization and supervision of galleys and mess halls, stores handling,

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discipline of troops in mess halls, food inspection and handling, and supervision of mess gear cleaning and garbage details. Only two meals a day are served on most transports, breakfast and dinner.

As salt water is frequently used to clean mess gear aboard ship, the new steel mess gear may rust quickly if it is not properly rinsed and dried. If possible, the mess officer should make arrangements to have fresh water for the third rinse. It should be kept boiling to obtain rapid drying.

Mess gear must be inspected frequently to guarantee cleanliness. Knives, forks, and spoons should be inspected at the home station to see that each handle has a hole in it as this facilitates easy handling of the mess gear while cleaning. The mess officer will be present at every mess. Unit commanders and officers must be frequently in the mess to check the feeding of their units.

Coordination of policing and sanitation activities throughout the ship cuts sickness and messing difficulties to a minimum. The police and sanitation officer is responsible that a uniformly high standard is maintained. Deck, section, and compartment commanders are responsible for the space under their jurisdiction, complying with any regulations of the ship's police and sanitation officer.

**Nautical Terms**

Aft—Toward, or in rear of ship
Midships—Toward, or in center of ship
Boatdeck—Deck on which lifeboats are located
Board—To go upon a vessel's deck; inboard is within vessel; outboard is without; overboard is into the water.
Bulkhead—Partition
Bridge—Elevated platform or boatdeck from which ship is controlled
Brig—Guardhouse
Deck—Floor
Fantail—Partial deck on after part of ship
Forward—Toward the forward part of ship
Gutter—Waterway
Hatch—Opening on the ship's deck and the cover that closes it
Head—Latrine
Hold—Large lower compartment of the vessel for the storage of cargo
Overhead—Ceiling
Port—Left side of ship when facing forward
Scuppers—Holes cut in the waterways (gutters) to permit water to run from the deck
Starboard—Right side of ship when facing forward
Stern—Rear part of ship
Topside—Top deck

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# MASTER ALPHABETICAL INDEX FOR VOLUMES I, II, III


| | Volume and Page |
|---|---|
| Accountability | III-434 |
| Accounting, Unserviceable Property | III-446 |
| Administration, Field Units | III-639 |
| Aerial Bombs | II-397 |
| Aerial Photographs | I-290,295 |
| Airborne Division | I- 28 |
| Aircraft and Armored Vehicles, Identification of | I-652 |
| Aircraft Armament | |
| 20 mm | II-565 |
| 37 mm | II-599 |
| 75 mm | II-625 |
| Air Forces | I- 5 |
| Allotments | I-116 |
| Ammunition | |
| Artillery | III-200 |
| Mortar | III-184 |
| Movement and Handling of | III-335 |
| Packing and Marking of | III-263 |
| Small Arms | III-154 |
| Unusable | III-268 |
| Ammunition (Special Operation) | III-389, 396 |
| Ammunition and Terminal Ballistics | III-143 |
| Ammunition Battalion | III-386 |
| Ammunition Companies | |
| Ammunition | III-375 |
| Renovation | III-366 |
| Ammunition Depot | |
| Layout of | III-348 |
| Operation of | III-371 |
| Security | III-351 |
| Ammuntion Supply | III-319 |
| Ammunition Storage | III-353 |
| Anchorages | III-584 |
| Antiaircraft, Maintenance Company | III-710 |
| Appendices (courts-martial) | I-222 |
| Appointments, NCO's | I-142 |
| Arm and Hand Signals | I-453 |
| Armor | II-811 |
| Armor Penetration | III-275 |
| Armor Piercing Bombs | II-400 |
| Armor Plate (Welding, Cutting) | III-129 |
| Armored Division | I- 25 |
| Armored Maintenance Battalion | III-685 |
| Army Emergency Relief | I-166 |
| Army Ordnance Plan | I-831 |
| Army Ordnance Staff | I-738 |
| Army Ordnance S.O.P. | I-859 |
| Arsenals, manufacturing | I- 50 |
| Artillery | |
| Ammunition | III-200 |
| Axles | II-250 |
| Ballistics, Exterior | II-267 |
| Ballistics, Interior | II-264 |
| Bogies | II-252 |
| Breech Mechanisms | II-209 |
| Caliber | II-208 |
| Care of Artillery | II-263 |
| Chart (Artillery) | II-264 |
| Development (Artillery) | II-201 |
| Elevating Mechanisms | II-240 |
| Equilibrators | II-242 |
| Exterior Ballistics | II-267 |
| Firing Mechanisms | II-214 |
| Firing Supports | II-258 |
| Interior Ballistics | II-264 |
| Lubricating | II-264 |
| Manometer Test | II-232 |
| Mortars | II-270 |
| Outriggers | II-255 |
| Recoil Mechanisms | II-221, 272A |
| Sleigh, Cradle, Carriage Components | II-239 |
| Spades | II-256 |
| Subcaliber | II-259 |
| Trails | II-253 |
| Traversing Mechanisms | II-246 |
| Types (Artillery) | II-204 |
| Tubes | II-205 |
| Artillery and Vehicles, Supply of | III-477 |
| Automotive | |
| Accessories | II-767 |
| Air-cooling | II-684 |
| Armor | II-811 |
| Auxiliary Generators | II-796 |
| Auxiliary Transmissions | II-699 |
| Axles | II-738 |
| Batteries | II-771 |
| Bogie Wheels | II-821 |
| Brakes | II-740 |
| Clutches | II-691 |
| Cranking Motors | II-782 |
| Diesel Engines | II-658 |
| Differentials | II-733 |
| Electrical Instruments, Accessories | II-793 |
| Engine Accessories | II-673 |
| Engine Construction | II-666 |
| Engine Cooling Systems | II-682 |
| Engine Lubrication System | II-684 |
| Engines (See Gasoline Engines, Diesel Engines) | II-648 |
| Final Drives | II-733 |
| Fire Extinguishers | II-770 |
| Fording, Deep Water | II-846 |
| Forms, Records, Reports | II-831 |
| Fuels and Lubricants | II-827 |
| Gasoline Engines | II-653 |
| Generators | II-774 |
| Gyro-stabilizer | II-798 |
| Hydraulic Control | II-717 |
| Hydraulic Drive | II-699 |
| Idlers | II-821 |
| Ignition System | II-676 |
| Lighting Systems | II-789 |
| Liquid Cooling | II-682 |
| Magneto Ignition | II-680 |
| Maintenance | II-664 |
| Oil Gear Hydraulic Turret | II-801 |
| Planetary Transmissions | II-707 |
| Preventive Maintenance Service | II-831 |




Digitized by Google
Original from UNIVERSITY OF MICHIGAN

| | Volume and Page |
|---|---|
| Propeller Shaft and Slip Joint | II-731 |
| Relays | II-794 |
| Shock Absorbers | II-821 |
| Steering Gears | II-750 |
| Speedometer | II-794 |
| Suspension | II-815 |
| Tanks, Sealing, Preparations for | II-851 |
| Tires and Tubes | II-757 |
| Torqmatic Transmission | II-716 |
| Tracks | II-764 |
| Transfer Cases | II-724 |
| Transmissions | II-693 |
| Universal Joints | II-724 |
| Vehicle Characteristics | II-807 |
| Vehicles, General Purpose | II-807 |
| Waterproofing, Tank, Tank-like Vehicles | II-849 |
| Winterization | II-825 |
| Automotive Machining | III-103 |
| Automotive Maintenance Company, Heavy | III-725 |
| Auxiliary Hoisting Devices | III-596 |
| Aviation Ordnance | |
| Aerial Mines | II-495 |
| Aircraft Armament | |
| 20 mm | II-565 |
| 37 mm | II-599 |
| 75 mm | II-625 |
| Aircraft Pyrotechnics | II-481 |
| Aircraft Rockets | II-511 |
| Aircraft Torpedoes | II-497 |
| Airforce Service Commands | II-391 |
| Altitudes of Release | II-454 |
| Armor-Piercing Bombs | II-400 |
| Bomb, Chemical | II-429 |
| Bomb, Gas, Persistent | II-426 |
| Bomb Handling | II-514 |
| Bomb Handling Drill | II-545 |
| Bomb, Photoflash | II-493 |
| Bomb Racks | II-482 |
| Bomb Service Crew | II-514 |
| Bomb, Smoke | II-427 |
| Bombs, Aerial | II-397 |
| Bombs, A.P. | II-401 |
| Bombs, Demolition | II-397 |
| Bombs, Depth | II-503 |
| Bombs, Fragmentation | II-404 |
| Bombs, G.P. | II-398 |
| Bombs, Incendiary | II-420 |
| Bombs, LC | II-400 |
| Bombs, Packing and Shipping | II-403 |
| Bombs, Painting and Marking | II-404 |
| Bombs, SAP | II-399 |
| Clustering | II-412 |
| Bomb Service Truck (M27) | II-524 |
| Cratering | II-443 |
| Damage Patterns | II-452 |
| Definitions | II-424 |
| Degaussing Magnetic Mines | II-497 |
| Fire Train | II-481 |
| Fuzes | II-410 |
| Ordnance Service & Organization Army Air Forces | II-389 |
| Penetration and Perforation of Concrete | II-443 |
| Tactical Use of Bombs | II-476 |
| Terminal Ballistics & Tactical Use of Aerial Bombs | II-441 |
| Time Tests | II-561 |
| War Shot | II-500 |
| Wind Effects Upon Range | II-441 |
| Awards, Decorations, Service Medals | I-381 |
| Ballistic and Technical Service Teams | III-740 |
| Base Armament Battalion | III-751 |
| Base Armored Vehicle Maintenance Company | III-752 |
| Base Artillery and Fire Control Company | III-759 |
| Base Automotive Maintenance Battalion | III-751 |
| Base Automotive Maintenance Company | III-755 |
| Base Battalion | III-749 |
| Base Depot | III-737 |
| Base Fuzes | III-230 |
| Base Group | III-747 |
| Base Section Operation Plan | I-817 |
| Base Shop Operation | III-764 |
| Base Small Arms Maintenance Company | III-757 |
| Base Section Ordnance Officer | I-735 |
| Basic Load Planning | III-492 |
| Battalion | |
| Base Armament | III-710 |
| Ordnance | III-685 |
| Block and Tackle | III-582 |
| Blocking and Bracing | I-909 |
| Bomb Reconnaissance and Disposal | |
| Bomb Disposal | III- 65 |
| Bombs, German | III- 11 |
| Bombs, Japanese | III- 33 |
| Bomb, Reconnaissance | III-1, 56 |
| Fuzes, Bomb | III- 7 |
| American | II-410 |
| German | III- 24 |
| Japanese | III- 54 |
| Booby Trap Fuzes | III-169 |
| Booby Traps | I-584 |
| Book, Company Property | I- 95 |
| Boosters (Ammunition) | III-233 |
| Brake Drum Machining | III-107 |
| Brazing | III-116 |
| Bridge Estimation | III-570 |
| Browning Automatic Rifle | II- 78 |
| Carbine, Cal .30 M1, M1A1, M1A3 | II- 39 |
| Cars, R.R. | I-938 |
| Cartridge Case, Bags | III-237 |
| Censorship, Postal | I-139 |
| Chains and Hooks | III-586 |


Digitized by Google
Original from UNIVERSITY OF MICHIGAN

| | Volume and Page |
|---|---|
| Challenging, Procedure for .. | I-463 |
| Charges ..... | I-189 |
| Chemical Bombs ..... | II-423 |
| Chemical Fillers ..... | III-149 |
| Chemical Warfare, Defense Against ..... | I-576 |
| Claims Officers ..... | I-171 |
| Cold Climate Storage, Ammunition ..... | III-395 |
| Combat Zone ..... | I- 21 |
| Communication Zone Depots . | III-462 |
| Communications Zone ..... | I- 29 |
| Communications Zone Ordnance Officer ..... | I-733 |
| Communications Zone SOP .. | I-802 |
| Company Operation ..... | III-655 |
| Company Property Book ..... | I- 95 |
| Components, Army of the U. S. | I- 17 |
| Concrete, Artillery Attack on . | III-276 |
| Containers, Selection of ..... | III-525 |
| Control, Stock ..... | III-458, 476 |
| Convoys, ship ..... | I-944 |
| Corps Ordnance Staff ..... | I-751 |
| Correspondence ..... | I-124 |
| Courts-Martial ..... | I-179 |
| Cover, Concealment, Camouflage ..... | I-604 |
| Crankshaft Grinding ..... | III-104 |
| Crating, Marking for Export .. | III-512 |
| Cutting (Welding) ..... | III-124 |
| Deaths ..... | I-149 |
| Decimals ..... | III- 70 |
| Definitions | |
| Ammunition ..... | III-144 |
| Aviation Ordnance ..... | II-424 |
| Fire Control ..... | II-298 |
| Small Arms ..... | II- 3 |
| Supply, Ordnance General | III-424 |
| Demolition Bombs ..... | III-397 |
| Depot Operation, ASP's (Ammunition) ..... | III-371 |
| Depots ..... | I- 47 |
| Depots, Communication Zone . | III-462 |
| Depots, Field ..... | III-479 |
| Desert Storage, Ammunition .. | III-395 |
| Destruction of Materiel ..... | III-674 |
| Destruction of unusable ammunition ..... | III-268 |
| Directors | |
| Electrical ..... | II-327 |
| Heavy AA ..... | II-311 |
| Light AA ..... | II-299 |
| Mechanical ..... | II-299 |
| Discharges ..... | I-145 |
| Disciplinary Powers of Commanding Officers ..... | I-180 |
| Distributing Points (Ammunition) ..... | III-374 |
| Division Ordnance Staff ..... | I-752 |
| Division Ordnance SOP ..... | I-866 |
| Doall Saw ..... | III- 87 |
| Driver Selection and Training ..... | I-418 |
| Dues-Out, Ordnance General Supply ..... | III-477, 491 |
| Duties of Court Personnel .... | I-197 |
| Duty Roster ..... | I- 78 |
| Efficiency Reports ..... | I-151 |
| Electric Arc Welding ..... | III-117 |
| Emotional and Mental Problems ..... | I-414 |
| Enemy Action, Defense Against Ammunition Supply Point | III-351 |
| Engineer Special Brigade SOP | I-884 |
| Equipment, Clothing, and tents | I-466 |
| European Theater of Operations | |
| Personal Observations in . | I-677 |
| Evidence ..... | I-213 |
| Export, Crating, Marking .... | III-512 |
| Evacuation Company ..... | III-730 |
| Explosives, Military ..... | III-145 |
| Field Army, Heavy Maintenance Company ..... | III-715 |
| Field Establishments ..... | I- 49 |
| Field Expedients | |
| Ammunition ..... | III-396 |
| General ..... | III-668 |
| Field Organization, Army .... | I- 19 |
| Field Rigging, Recovery, Evacuation ..... | III-541, 572 |
| Field Service ..... | 1- 47 |
| Field Shop, Location, Layout . | III-648 |
| Field Depots ..... | III-479 |
| Fire Control | |
| Altitude Converter ..... | II-330 |
| Antiaircraft Problem .... | II-275 |
| Computor, M1 ..... | II-325 |
| Direct Fire ..... | II-273 |
| Directors | |
| Electric ..... | II-327 |
| Heavy A.A. ..... | II-311 |
| Light A.A. ..... | II-299 |
| Mechanical ..... | II-299 |
| Equipment ..... | II-276 |
| Field Inspection, Forms .. | II-296 |
| Fuze Setting, Ramming Equipment ..... | II-365 |
| Generating Units, A.A. .. | II-377 |
| Glossary of Terms (Fire Control) ..... | II-298 |
| Gun Data Computer, M1 . | II-325 |
| Height Finder, Optical .. | II-337 |
| Indirect Fire ..... | II-274 |
| Inspection Forms ..... | II-383 |
| Internal Adjustments System, Finders ..... | II-350 |
| Instruments | |
| General ..... | II-276 |
| Miscellaneous ..... | II-295 |
| Observation ..... | II-290 |
| Power Unit and Trailer for Directors ..... | II-337 |
| Quadrants ..... | II-289 |
| Range Finders ..... | II-295 |
| References | |
| General Instrument .. | II-380 |
| Remote Control Systems .. | II-353 |


Digitized by Google
Original from UNIVERSITY OF MICHIGAN

| | Volume and Page |
|---|---|
| Terms and Symbols | |
| Electric Directors | II-336 |
| Heavy Mechanical Directors | II-325 |
| Light Directors | II-310 |
| Tracker | II-330 |
| First Aid | I-395 |
| Flag, Display of | I-361 |
| Flow | |
| Ammunition | III-321 |
| Ordnance General Supplies | III-401 |
| Forms, Ammunition Supply | III-336 |
| Forms, Requisition | III-426 |
| Fractions | III- 69 |
| Fragmentation Bombs | II-404 |
| Funds, Unit | I- 88 |
| Furloughs | I-143 |
| Fusion Welding | III-115 |
| Fuzes | |
| Aerial Bomb | II-410 |
| Artillery | III-209 |
| Booby Trap | III-169 |
| Delay | III-231 |
| Land Mine | III-168 |
| Rocket | III-250 |
| Time | III-224 |
| Gas Casualities | I-107 |
| General Purpose Bombs | II-398 |
| General Staff | I- 3 |
| Generators (A.A.) | II-377 |
| Generators, Auxiliary | II-796 |
| Geometry | III- 72 |
| German Bombs | III- 11 |
| GI Bill of Rights | I-161 |
| Grenades | |
| Foreign | I-570 |
| Hand | I-551, III-162 |
| Rifle | I-562 |
| Ground Forces | I- 8 |
| Group and Battalion Ordnance Staffs | I-757 |
| Hand Tools | III- 77 |
| Heavy Automotive Maintenance Company | III-725 |
| Heavy Maintenance Company | |
| Field Army | III-715 |
| Tank | III-718 |
| Height Finder, Optical | II-337 |
| Hoisting Devices, Auxiliary | III-596 |
| Identification of Metals | III-138 |
| Improvisation, Field Expedients | III-668 |
| Incendiary Bombs | II-420 |
| Illumination, Time and Solar | I-798 |
| Income Tax | I-171 |
| Index Hand Computations | III- 76 |
| Industrial Service | I- 42 |
| Infantry Division | I- 22 |
| Information, Sources of | III-410 |
| Inland Supply Installations (Ammunition) | III-392 |
| In-line Boring | III-106 |
| Inspection, Ammunition | III-364 |
| Inspections | |
| Troop | I-446 |
| Guard | I-459 |
| Inspections, By Ordnancemen | III-661 |
| Insurance, National Service Life | I-158 |
| Interior Guard Duty | I-456 |
| Instruments | |
| Fire Control | II-276 |
| Measuring | III- 78 |
| Introduction | III- 69 |
| Interchangeability | III-423 |
| Investigation of Charges | I-192 |
| Investigations, Administrative | I-170 |
| Issues and Shipments | III-474 |
| Japanese Bombs | III- 33 |
| Japanese Soldier, Identification of | I-684 |
| Joint Design (Welding) | III-126 |
| Jurisdiction-Exclusive and Concurrent | I-178 |
| Key Personnel (Ammunition Handling) | III-574 |
| Knots | III-574 |
| Lathes | III- 89 |
| Lay-out, in Machine Work | III- 77 |
| Layouts, Depots, ASP's, Area | III-348 |
| Leadership and Discipline | I-331 |
| Legal Assistance | I-169 |
| Light Case Bombs | II-400 |
| Light Division | I- 28 |
| Loading, R.R. Car | I-915 |
| Lost, Damaged Property | III-447 |
| Lubrication | |
| Artillery | II-264 |
| Small Arms | II-194 |
| Machine Guns | |
| Cal .30 | II-111 |
| Cal .50 | II-130 |
| Machine, Milling | III- 98 |
| Maintenance Company | |
| Antiaircraft | III-710 |
| Light | III-698 |
| Medium | III-700 |
| Major Commands, Three | I- 5 |
| Malaria | I-393 |
| Manufacturing Plants, Government-owned | I- 57 |
| Maps and Aerial Photographs | |
| Aerial Photograph | I-290,295 |
| Azimuth | I-257 |
| Base Directions | I-250 |
| Compass | I-279 |
| Coordinates | I-266 |
| Contour | I-260 |
| Declinations | I-253 |
| Elevation | I-260 |
| Graphic Scales | I-246 |
| Military Symbols | I-299 |
| Representative Fractions | I-247 |
| The Trust Line | I-276 |


Digitized by Google
Original from UNIVERSITY OF MICHIGAN

| | Volume and Page |
|---|---|
| Marches | |
| Motor | I-435 |
| Foot | I-443 |
| Marking, Crating, Export | III-512 |
| Marking, Overseas Movement | I-905 |
| Marksmanship | |
| Rifle | I-490 |
| Carbine | I-503 |
| Machine Gun | I-511 |
| Sub-Machine Gun | I-537 |
| Pistol | I-542 |
| Martial Law | I-175 |
| Materiel, Destruction | III-674 |
| Mathematics | III- 69 |
| Measuring Instruments | III- 78 |
| Mechanical Advantage | III-580 |
| Medium Automotive Maintenance Company | III-705 |
| Mess Management | I-131 |
| Metal Spraying | III-138 |
| Metals, Identification of | III-138 |
| Military Explosives | III-145 |
| Military Government | I-173 |
| Military Law | I-176 |
| Military Plans and Training Service | I- 39 |
| Military Symbols | I-299 |
| Military Calls | I-358 |
| Military Courtesy | I-352 |
| Military Medicine | I-391 |
| Milling Machine | III- 98 |
| Mine Fields | I-643 |
| Mines | |
| Aerial | II-495 |
| Antipersonnel | III-174 |
| Antitank | III-178 |
| Mobilization Training Programs | I-339 |
| Morale | I-344 |
| Mortar Ammunition | III-184 |
| Motor Movements | I-928 |
| Motor Vehicle Assembly Company | III-769 |
| Motor Vehicle Distribution Company | III-770 |
| Mounts, Multiple Gun | |
| Cal .50 M54 | II-166 |
| M45 | II-174 |
| Mounts, Truck | II-186 |
| Morning Report | I- 64 |
| Mortars | II-270 |
| Movements, Motor | I-928 |
| Movements, Rail | I-935 |
| Office Chief of Ordnance-Detroit | I- 45 |
| Officer Taboos | I-360 |
| Oil, Cutting, Lard | III- 82 |
| Operating Speeds, Machine | III- 75 |
| Operating Company | III-655 |
| Ordnance | |
| Liaison | I-728 |
| Planning | I-719 |
| Staff Officer | I-712 |
| Ordnance Base Depot | III-739 |
| Ordance Base Depot Company | III-465 |
| Ordnance Battalion | III-685 |
| Ordnance Battalion S.O.P. | I-871 |
| Ordnance Department, Organization | I- 33 |
| Ordnance Districts | I- 52 |
| Ordnance Depot Company | III-481 |
| Ordnance Group | III-682 |
| Ordnance Officer | |
| Base Section | I-735 |
| Communications Zone | I-733 |
| Ordnance Service and Organization in Army Air Forces | II-389 |
| Ordnance Troop Requirements, calculation of | I-761 |
| Organization, Field Units | III-639 |
| Organization of the Army | I- 1 |
| Organization, Smaller Units | I- 28 |
| Orders, Military | I-129 |
| Orientation, Need For | I-349 |
| Oxyacetylene Welding | III-112 |
| Packing and Marking (Ammunition) | III-263 |
| Packing and Shipping | II-403 |
| Packing, Overseas Movement | I-907 |
| Pay, E.M. | I-113 |
| Pay of Officers | I-122 |
| Payrolls | I-119 |
| Personnel System | I- 61 |
| Physical Training | I-473 |
| Pistols, Automatic | II- 93 |
| Pistons, Machining | III-108 |
| Plan | |
| Army Ordnance | I-831 |
| Base Section Operation | I-735 |
| Power of Attorney | I-168 |
| Preparation for Trial | I-194 |
| POM | I-893 |
| Preservation, Storage | III-534 |
| Preventive Maintenance | |
| Automotive | III-664 |
| Small Arms | II-191 |
| Primers (Ammunition) | III-237 |
| Principles of Supply | III-409 |
| Procurement of Supplies | III-401 |
| Propelling charges | III-236 |
| Property | |
| Issue | III-442 |
| Receipts | III-469 |
| Property, Lost or Damaged | III-449 |
| Proving Grounds | I- 55 |
| Publications, A.S.F. | III-415 |
| Punishment | I-218 |
| Pyrotechnics, Aircraft | II-481 |
| Quadrants | II-289 |
| Rail, Movements | I-935 |
| Rammers, A.A. | II-365 |
| Rank and Insignia | I-372 |
| Rations | I-134 |
| Receipts, For Property | III-469 |
| Recoil Mechanisms | II-221 |
| Recovery, Evacuation, Field Rigging | III-541 |


Digitized by Google
Original from UNIVERSITY OF MICHIGAN

| | Volume and Page |
|---|---|
| Red Cross | I-166 |
| Reductions, N.C.O.'s | I-143 |
| References, R.R. Infor. | I-944 |
| Renovation of Ammunition | III-365 |
| Replacements, Overseas | I-923 |
| Replenishment, Stock | III-476 |
| Report, Daily Sick | I- 82 |
| Reports, Efficiency | I-151 |
| Requisitioning | III-425 |
| Research and Development Service | I- 41 |
| Responsibilities, Planning, Supply (Ammunition) | III-322 |
| Responsibility | III-434 |
| Restraint (Types) | I-185 |
| Review of Court Martial Records | I-220 |
| Revolvers, Cal .45 M1917 | II-100 |
| Rifles | II- 7 |
| Rocket Fuzes | III-250 |
| Rocket Launcher | II- 44 |
| Rockets Aircraft | II-511 |
| Rockets and Launchers | III-239 |
| Rope, Wire | III-603 |
| Safety | |
| General | I-449 |
| Range | I-549 |
| Sanitation Unit Bivouac | I-411 |
| Saw, Doall | III- 87 |
| Security and Intelligence | I-667 |
| Scouting, Patrolling and Route Reconnaissance | I-620 |
| Screw Thread Dimensions | III- 75 |
| Security, Ordnance Units | III-670 |
| Service Commands | I- 15 |
| Service Forces | I- 11 |
| Service Record | I-101 |
| Shapers | III- 83 |
| Shell Fragment Damage | III-300 |
| Shipment, Preparation of Supplies | III-498 |
| Shipping | |
| Ammunition | III-365 |
| Small Arms | II-196 |
| Shop Theory and Practice | III- 69 |
| Shop Trucks | III-109 |
| Sick Report, Daily | I- 82 |
| Signal Communications | I-670 |
| Slings, Guy Wires | III-588 |
| Small Arms | |
| Automatic Pistol Cal .45 M1911 and M1911A1 | II- 93 |
| Browning Automatic Rifle Cal .30 M1918, M1918A1, M1918A2 | II- 78 |
| Browning Machine Gun, Cal .50 M2 | II-130 |
| Browning Machine Gun, Cal .30 M1917A1 | II-111 |
| Browning Machine Gun, Cal .30 M1919A4 | II-111 |
| Carbine Cal .30 M1-M1A1-M1A3 | II- 39 |
| Carbine Cal .30 M2 | II-198A |
| Definitions | II- 3 |
| Lubrication, General | II-194 |
| Machine Guns, Development | II-109 |
| Mount, AA M3 | II-188 |
| Mount, (Navy) Cal .50 Mark 30 | II-187 |
| Mount, Multiple Gun M54 | II-166 |
| Mount, Multiple Gun M45 | II-174 |
| Mount, Tripod | |
| Cal .30 M1917A1 | II-179 |
| Cal .30 M2 | II-182 |
| Cal .50 M3 | II-183 |
| Cal .50 M2A1 | II-184 |
| Mounts, Truck | II-186 |
| Preventive Maintenance (All Small Arms) | II-191 |
| Revolvers Cal .45 M1917 | II-100 |
| Rifle, Cal .30 M1 | II- 31 |
| Rifle, Cal .30 M-1903-A1-A2-A3-A4 | II- 7 |
| Rifle, Cal .30 M1917 | II- 27 |
| Rocket Launcher A.T. 2.36 inch-M1A1 & M9A1 | II- 27 |
| Rocket Launcher A.T. 2.36 inch-M9 | II- 51 |
| Shipping & Storage | II-196 |
| Submachine Gun Cal .45 M3 | II- 68 |
| Submachine Gun Cal .45 M3A1 | II-198B |
| 37 MM Gun M1A2 | II-168 |
| Thompson Submachine Gun Cal .45 M1928A1 | II- 54 |
| Waterproofing | II-197 |
| Small Arms Ammunition | III-154 |
| Soldering | III-110 |
| Soldiers' & Sailors Civil Relief Act | I-163 |
| Spades | II-256 |
| Special Operations (Ammunition) | III-389 |
| Special Staff | I- 4 |
| Staff | |
| Functions | I-693 |
| Officer | I-712 |
| Problem | I-710 |
| Standard Operating Procedure | |
| Army Ordnance | I-859 |
| Communications Zone | I-802 |
| Division Ordance | I-866 |
| Engineer Special Brigade | I-884 |
| Ordnance Battalion | I-871 |
| Stock Control | III-458, 476 |
| Stock Replenishment | III-476 |
| Storage | |
| Ammunition | III-353 |
| Desert | III-395 |
| Tropical | III-392 |
| Cold Cimates | III-395 |
| General | III-472 |
| Subcaliber Equipment | II-259 |
| Submachine Gun Cal .45 M3 | II- 68 |
| Submachine Gun Cal .45 M3A1 | II-198B |


Digitized by Google
Original from UNIVERSITY OF MICHIGAN

| | Volume and Page |
|---|---|
| Summary Court-Martial | I-201 |
| Supplies, Ordnance General Classification, Procurement and Flow of | III-401 |
| Proportion for Shipment | III-498 |
| Supply, Principles of | III-409 |
| Supply, Ordnance Department | I- 59 |
| Survey, Class II Property | III-454 |
| Targets, Machine Gun | I-523 |
| Taxes, Income | I-171 |
| Telescopes | II-290 |
| Terminal Ballistics | III-275 |
| Terms, Nautical | I-949 |
| Theater Ordnance Officer | I-731 |
| 37 mm Gun M1A2 | II-168 |
| Thompson Submachine Gun Cal .45 | |
| M1928 A1 | II- 54 |
| M1A1 | II- 55 |
| Training | |
| Troop | I-315 |
| Mine-Warfare | I-589 |
| Transportation, Water | I-944 |
| Time Fuzes | III-224 |
| Tire Repair Operation | III-760 |
| Tools, Hand | III- 77 |
| Trails | II-253 |
| Transfer, E.M. | I-145 |
| Transportation, Ammunition | III-335 |
| Traversing Mechanisms | II-246 |
| Trial, Preparation for | I-194 |
| Trial Procedure | I-194 |
| Tropical Storage | III-392 |
| Trucks | |
| Shop | III-109 |
| Welding | III-136 |
| Tubes | II-205 |
| Unarmed Combat | I-480 |
| Uniforms and Equipment | I-366 |
| Unit Funds | I- 88 |
| Unusable Ammunition, Destruction of | III-268 |
| U. S. Army Artillery Fuzes | III-212 |
| Valve Refacing | III-105 |
| Vehicles and Artillery, Supply of | III-477 |
| Veterans Administration | I-155 |
| Voice Radio Procedure | I-673 |
| Voting | I-216 |
| War Department | I- 2 |
| Water Transportation | I-944 |
| Waterproofing | II-197 |
| Weldability | III-123 |
| Welding | |
| Armor Plate | III-129 |
| Electric Arc | III-117 |
| Fusion | III-115 |
| Oxyacetylene | III-112 |
| Welding Trucks | III-136 |
| Wills | I-168 |
| Wire Rope | III-603 |


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